

INCODEL BUSINESS MEETING

New York City, New York
December 15, 1942

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Delaware
New Jersey

New York
Pennsylvania

INTERSTATE COMMISSION

on the Delaware River Basin

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INCODEL BUSINESS MEETING

New York City, New York
December 15, 1942

- I. Minutes of the Previous Meeting.
- II. Report of Executive Secretary.
- III. Report of Committee on Quantity.
- IV. Report of Committee on Quality.
- V. Finances.

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Incode1 Calendar
Business Meeting

NUMBER I: Reading of Minutes of Previous Meeting.

By: The Executive Secretary

ACTION REQUIRED:

ACTION RECOMMENDED:

By:

ACTION TAKEN:

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

SUMMARY

of

MINUTES OF INCODEL MEETING

Hotel Roosevelt, New York City
October 6, 1942

A business meeting of the Interstate Commission on the Delaware River Basin was held at the Hotel Roosevelt, New York City, on Tuesday, October 6, 1942, following a luncheon meeting with the Board of Water Supply of the City of New York.

The following Commissioners were present: from Delaware: Messrs. Beckett and Heal; from New Jersey: Messrs. Hartshorne and Paul; from New York: Senator Warner; from Pennsylvania: Messrs. Pitkin and Turner. Mr. Wayne D. Heydecker of the Council of State Governments and Mr. Frederick L. Zimmermann of the New York Joint Legislative Committee on Interstate Cooperation were also in attendance.

Business Meeting

The meeting convened at 3:30 P.M., with Chairman Turner presiding. The minutes of the preceding meeting were approved as read upon a motion made by Senator Heal, seconded by Mr. Paul, and agreed to.

There followed a reading of the report of the Executive Secretary which was received and filed upon a motion made by Mr. Pitkin, seconded by Mr. Paul, and agreed to.

The Secretary was directed to send a letter to Dr. Mahaffey, Director of the New Jersey Department of Health, commending him for his action in reference to the Beaunit Mills, Inc. A communication was also ordered sent to Commissioner McGahen of the Board of Water Supply advising him of New Jersey's action as an example of enforcement.

A summary of finances running from July 1, 1942, to August 31, 1942, was reviewed and approved for filing: Incodel Accounts Current and Payable for the Month of July, in the total amount of \$2,156.03, and for August, in the total amount of \$1,446.27, were approved as submitted.

New Jersey Canal Study

The Incodel Survey and Report on the New Jersey Canal was next submitted for review, discussion, and action.

The report was first read and then discussed in detail.

Mr. Pitkin suggested that the Cape May canal, mentioned in the report as now under construction, might provide the "missing link" in the Atlantic Intra-Coastal Waterway System, and avoid what would appear to be a duplication, -- the proposed New Jersey Canal.

Mr. Allen of the Commission's staff explained that such a possibility had not been extensively studied first because the Commission's study was an analysis of the New Jersey Canal and secondly because, under wartime restrictions, it had been impossible to obtain detailed information on the Cape May Canal from the United States Engineer Corps.

Mr. Pitkin also suggested that the section in the report covering the effect of the proposed canal on agricultural land use in New Jersey might have been emphasized. It was explained that such considerations were intra-state in nature and effect and that the Commission's study attempted to center attention on the larger and interstate aspects of the canal's construction.

Following additional discussion and review, the report was accepted, its findings and conclusions concurred in, upon a motion made by Mr. Paul, seconded by Senator Heal, and agreed to.

Distribution of Report

Chairman Turner directed that copies of the report be sent to: (1) Congressional Committees; (2) governmental agencies in the states interested in water resources; (3) the Senators and House members from the three states; (4) the Atlantic Deeper Waterways Association; (5) Mayors of principal cities in the Basin; (6) Port Commissions in the area; (6) Commercial organizations; and (7) the National Resources Planning Board.

The secretary was directed to prepare and place in copies of the report a letter of transmittal indicating that the report has been approved by the Commission.

Chairman Turner next introduced to the Commission Mr. Robert Kresge, Jr., who assisted in the preparation of the report under an internship assignment from the Institute of Local and State Government, University of Pennsylvania. Upon a motion made by Mr. Pitkin, seconded by Senator Warner, and agreed to, the secretary was ordered to write to Dr. Stephen B. Sweeney, Director of the University's Institute, expressing the Commission's appreciation for Mr. Kresge's work. The secretary was also directed to prepare a commendatory Resolution for Mr. Kresge.

Mr. Pitkin expressed the belief that, in the future, reports such as the one referred to herein, should be sent to Commissioners in advance so that they might have an opportunity to review them in entirety before the day of meeting. It was agreed that such a procedure should be followed in order to assure most careful consideration of matters referred to the Commission for action.

After additional discussion, the meeting was adjourned at 5:45 P.M., upon a motion made by Mr. Paul, seconded by Mr. Beckett, and agreed to. The next business meeting was scheduled to be held jointly with the Board of Water Supply of the City of New York on or about December 10, in New York City.

Incodel Calendar
Business Meeting

NUMBER II: Report of the Executive Secretary

STATEMENT: See attached copy.

ACTION REQUIRED: Review and approval.

ACTION RECOMMENDED:

By:

ACTION TAKEN:

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

REPORT OF EXECUTIVE SECRETARY

Incodel Business Meeting
New York City, New York
December 15, 1942

All action directed by the Commission at its meeting of October 6, 1942, as outlined in the Minutes for that meeting, has been taken.

This report of the Executive Secretary will cover, mainly, the results of our negotiations with the New York Board of Water Supply since our last meeting.

A series of conferences with the engineers of the New York Board, Messrs. Clark, Armstrong, and Bouton has been held. Mr. Russell Suter, Executive Engineer of the New York Water Power and Control Commission and the State of New York's representative on Incodel's Quantity Committee attended the first meeting.

The New York Board's engineers had made a considerable study of the Incodel proposals with particular reference to their possible effect upon the projects they now have under construction. They suggested a clarification of two definitions in the engineering agreement which the Incodel staff subsequently studied and agreed upon.

We are of the opinion that, from the engineering standpoint, New York's technical administrators would prefer to operate their present projects under the alternative rules recommended by Incodel.

However, in conversations with them, through correspondence with Mr. McGahen, and from the expressed attitude of Board members during the luncheon meeting with them two months ago, it seems apparent that their principle worry in connection with our proposed legislation lies in its effect upon their rights, privileges, and duties as established by the United States Supreme Court in the Delaware River Case of 1931.

Within the past week, therefore, a suggestion has been made by Mr. Suter of New York which would seem to take care of their objections. The Suter re-draft of our Water Supply Act ties it in more closely with the existing conservation laws of the State of New York (which it amends, in some particulars); it makes no change in the technical sections of the Bill, as agreed upon by the members of Incodel's Quantity Committee; it provides substantially similar procedures for exercising the powers and duties of the enforcing agency, the State Water Power and Control Commission.

In connection with the latter clause, you may recall that Messrs. Gillespie and McGahen indicated, during our October meeting, that it might be necessary, in their opinion, for a central interstate or federally appointed "river master" to assume jurisdiction and control of the water resources of the Delaware River Basin at some time in the future, somewhat along the lines suggested in the Supreme Court Case by the Commonwealth of Pennsylvania. Mr. McGahen indicated his further opinion that such control might result through an interstate compact.

The pattern of Incodel's organization, and our operation to date, would not permit such a result. We have always attempted to supplement rather than to supplant existing state agencies, offering them a continuing medium through which cooperative machinery could function.

That objection to our proposal for reciprocal-concurrent legislation, retaining the states' present water supply agencies in cooperative control, if it is an objection, cannot be overcome, in my opinion.

However, the difficulty regarding our legislation as superseding the existing rights and privileges of the City and State of New York, as granted by the Supreme Court, has been handled in the latest draft by the inclusion of a section (#515) which provides that the Bill shall not affect any right accrued at the time the Article takes effect. If, however, the City of New

York desires to take advantage of the alternative terms and conditions set forth in the Incodel rules, they are permitted to make application to the Supreme Court (through the States's Water Power and Control Commission) to authorize the modifications.

This proposal has not been made to the Board since it was drafted within the past week and had not been placed before the Commission for approval.

A complete draft of the revised New York Bill is appended to this report. Additional copies are available.

The New Jersey Canal Report

Copies of the New Jersey Canal Study, reviewed and approved by the Commission at its last meeting, were widely distributed and received favorable notice. The appendices to this report have been mimeographed and are being mailed, upon request, to those who received the Survey and Report.

Messrs. Turner and Allen attended the annual meeting of the Atlantic Deeper Waterways Association, in Philadelphia, where construction of the canal was discussed.

According to the latest information received, the project has been abandoned, at least for the duration.

Miscellaneous Business

The reports submitted in behalf of Incodel's Advisory Committee on Quality and Quantity, later in today's calendar, will cover other items of Commission business, up to date.

The Secretary attended the annual business meeting of the National Association of Attorneys General in St. Louis, on November 23-24. The Chairman will no doubt want to discuss this and other developments in connection with the immediate future.

Respectfully submitted,

David W. Robinson
Executive Secretary

December 10, 1942

AN ACT

TO AMEND THE CONSERVATION LAW, IN RELATION TO
INTERSTATE COOPERATION FOR THE USE, CONSERVATION,
PROTECTION AND EQUITABLE DIVERSION OF THE WATER
RESOURCES IN THE DELAWARE RIVER BASIN BETWEEN THE
COMMONWEALTH OF PENNSYLVANIA AND THE STATES OF
NEW YORK AND NEW JERSEY FOR THE PURPOSE OF MEETING
PRESENT AND PROSPECTIVE NEEDS FOR DOMESTIC AND
MUNICIPAL WATER SUPPLY.

The People of the State of New York, represented in
Senate and Assembly, do enact as follows:

1 Section 1. Chapter six hundred forty-seven of the laws
2 of nineteen hundred eleven, entitled "An act relating to the conservation
3 of land, forests, waters, parks, hydraulic power, fish and game, consti-
4 tuting chapter sixty-five of the consolidated laws," the Conservation
5 law, as last amended, is hereby further amended by inserting therein a
6 new article, to be article ten thereof and to read as follows:

ARTICLE X

DIVERSION OF WATER FROM DELAWARE RIVER BASIN

- Section 501. Legislative intent.
502. Definitions.
503. General provisions for diversions.
504. Provisions for complete diversions from tributaries
of the Delaware River.
505. Provisions for partial diversions from tributaries
of the Delaware River.
506. Provisions for complete diversions from the channel
of the Delaware River.

- 507. Provisions for partial diversions from the channel of the Delaware River.
- 508. Provisions for complete and partial diversions from the tributaries or the channel of the Delaware River.
- 509. Article to be enforced by the Water Power and Control Commission.
- 510. Powers and duties of the Commission in relation to the Delaware River Basin.
- 511. Procedure for obtaining the approval of the Commission.
- 512. **Approval** by the United States Supreme Court.
- 513. Diversion projects in other states.
- 514. Enforcement.
- 515. Project of the City of New York.
- 516. Saving Clause.
- 517. Constitutional construction and severability.
- 518. Repeals.
- 519. Effective date.

1 Section 501. Legislative Intent. The Interstate Commission on
2 the Delaware River Basin, a regional commission formed by the Joint
3 Legislative Committee on Interstate Cooperation, representing the
4 Commonwealth of Pennsylvania and the States of New Jersey and New York,
5 in cooperation with the Water Power and Control Commission of the
6 Department of Conservation of the State of New York and similar agencies
7 of New Jersey and Pennsylvania, having made a study of the water
8 resources of the Delaware River Basin and proposals for interstate
9 cooperation in the use, conservation, protection and equitable diversion
10 of the water resources of the Delaware River Basin having been approved

1 by said commission, it is the intent and purpose of this enactment
2 to regulate the diversion and use of the waters of the Delaware
3 River and its tributaries for the purpose of meeting present and
4 prospective needs for domestic and municipal water supply, and the
5 provisions of this article shall apply to the state or any agency
6 thereof, any municipality or civil division of the state, district
7 or similar agency or authority, persons, partnerships, corporations
8 or associations.

9 Section 502. Definitions. The following words, phrases or
10 abbreviations, unless the context clearly indicates otherwise, shall
11 have the meanings ascribed to them in this section.

12 "Commission" means the Water Power and Control Commission
13 of the Department of Conservation of the State of New York or its
14 duly constituted successor.

15 "Person" includes the state or any agency thereof, any
16 municipality or civil division of the state, district or similar
17 agency or authority, persons, partnerships, corporations or associa-
18 tions.

19 "c.f.s." is the abbreviation for cubic feet per second.

20 "c.s.m." is the abbreviation for cubic feet per second
21 per square mile of contributing drainage area.

22 "Delaware River" means that reach of the Delaware River
23 which extends from the confluence of the West Branch and the East
24 Branch of the Delaware River, near Hancock, New York, to the point
25 where it passes the boundary line between the States of Delaware
26 and Pennsylvania.

1 "Delaware River Basin" means the total area drained by the
2 Delaware River and its tributaries.

3 "Waters of the Delaware River" or "Waters of the Delaware
4 River Basin" means the surface waters originating within the Delaware
5 River Basin.

6 "Channel" or "Channel of the Delaware River" means the bed
7 of the Delaware River and the lands on and over which the waters of
8 said river flow.

9 "Upper Basin" means that part of the Delaware River Basin
10 from which the surface waters flow and enter the channel of the
11 Delaware River at or above its confluence with the Neversink River.
12 The Upper Basin shall be understood to include the area drained by
13 the Neversink River.

14 "Lower Basin" means that part of the Delaware River Basin
15 which is not embraced within the Upper Basin.

16 "Tributary" or "Tributary of the Delaware River" means any
17 watercourse the waters of which naturally flow into the channel of
18 the Delaware River.

19 "Complete Diversion" means the taking or removal of waters
20 of the Delaware River Basin to a point outside of the Delaware River
21 Basin.

22 "Partial Diversion" means the taking or removal of waters
23 from any point in the Delaware River above Trenton Falls or from any
24 tributary of the section of the Delaware River above Trenton Falls,
25 which water is returned to the channel of the Delaware River under
26 the following conditions:

1 A. If taken from a tributary, such water is
2 returned, but not in such a manner as to be
3 available in the channel at the confluence
4 of such tributary and the Delaware River.

5 B. If taken from the Delaware River, such water
6 is returned, but not above a point twelve
7 miles below the point of taking, as measured
8 along the center line of the channel, provided
9 that if the water is returned within twelve
10 miles of the point of the original taking, said
11 taking shall not be considered a partial diversion.

12 "Divert" means to effect a complete diversion or a partial
13 diversion.

14 "Development" means the construction of any works for the
15 taking of water or the storage of water for diversion.

16 "Develop" means to make available by development.

17 "Point of Development" means the place on the Delaware
18 River or upon a tributary at which the lowermost structure, dam, intake
19 or other works, is maintained for the purpose of making water available
20 for diversion.

21 "Domestic and Municipal Water Supply" means the use of
22 water by or for water works serving the public.

23 "Natural Flow" means the flow of the river or tributary
24 in practically the natural state. In order to determine natural flow,
25 observed flows shall be corrected for the effect of developments or
26 works of man except those which would not materially alter the flow
27 characteristics of the stream.

1 "Actual Flow of the Delaware River" means the existing flow
2 of the Delaware River uncorrected for the effects of any developments
3 or works of man, excepting for the effect of diversions around the
4 point of development.

5 "Control Rates" means the rates of natural flow of a stream,
6 at the point of development, used in fixing the rate of flow to be
7 maintained below that point, correlated with certain rates of natural
8 flow at the stream gaging station cooperatively operated by the
9 United States Geological Survey, at Trenton, New Jersey, and they are
10 to be obtained as follows: from the record of flow of the Delaware
11 River at Trenton gage for the years "A" to "B", both inclusive, corrected
12 for diversion around that station and for artificial regulation it has
13 been determined that the natural flow of the river at that point
14 exceeds 4,000 c.f.s. for "C" per cent of the time, exceeds 3400 c.f.s.
15 for "D" per cent of the time and exceeds 2500 c.f.s. for "E" per cent
16 of the time; from the measured or computed rates of natural flow of the
17 stream under consideration at the proposed point of development and
18 for the years "A" to "B", both inclusive, rates of flow are determined
19 which will be exceeded by the natural flow for the same percentages
20 of time, "C", "D" and "E", as have been determined for
21 Trenton gage as shown. These rates of flow are termed the 4,000 c.f.s.,
22 3400 c.f.s. and 2500 c.f.s. control rates for that point of diversion.
23 In arriving at the rates of natural flow of the stream as above set
24 forth, measured rates of flow shall be used as far as they may be
25 available. The remaining figures shall be derived from the records
26 of the nearest and most suitable gaging stations, using accepted
27 hydrological methods for making the computations.

1 "Long-term-average-yield" means the average daily rate of natural
2 runoff of the stream under consideration at its point of development for
3 the period between October 1, and September 30, , both inclusive.
4 In determining the long-term-average-yield as above set forth, measured
5 rates of flow shall be used as far as they may be available. Otherwise
6 such yield shall be derived from the records of the nearest, most suitable
7 gaging stations, using accepted hydrological methods for making the compu-
8 tations.

9 "Diversion Project" means any project for development or
10 use of the waters of the Delaware River for domestic and municipal
11 water supply involving complete or partial diversion of water from
12 a tributary of the Delaware River or a complete diversion from the
13 channel of the Delaware River as set forth in this article.

14 Section 503. General Provisions for Diversions. It shall be
15 unlawful to divert water from any tributary of the Delaware River
16 within the state, or from the channel of the Delaware River within
17 the state, or from both, for use for domestic and municipal water
18 supply anywhere within the state or within or without the Delaware
19 River Basin without the previous consent and approval of the Water
20 Power and Control Commission. Such consent and approval shall be
21 given only if, in addition to the determinations which the Commission
22 is required to make under any other statutory provision, it shall
23 also determine that such development is such as to promote the
24 greatest economy in the use and conservation of the waters of the
25 Delaware River Basin consistent with reasonableness and practica-
26 bility and such development fully complies with the provisions,

1 conditions, limitations, rules, formulae and standards provided
2 in this article.

3 Section 504. Provisions for Complete Diversions from Tributaries
4 of the Delaware River. Complete diversions of water from the tribu-
5 taries of the Delaware River for domestic and municipal supply purposes
6 shall be subject to the following:

7 A. Whenever the natural flow of the tributary
8 under development, at its point of development,
9 exceeds its 4000 c.f.s. control rate all or any part
10 of such natural flow may be withheld in storage in
11 reservoirs on, or may be withdrawn directly from,
12 such tributary, and be diverted.

13 B. Whenever the natural flow of the tributary
14 under development, at its point of development, falls
15 below its 4000 c.f.s. control rate, the flow of the
16 tributary immediately below the point of development
17 shall be maintained as follows:

18 1. Whenever the natural flow of the
19 tributary falls below its 2500 c.f.s. control
20 rate, the rate of flow required to be main-
21 tained shall be fifty (50) per cent of the
22 long-term-average-yield of the stream, if in
23 the Upper Basin; and forty (40) per cent of the
24 long-term-average-yield of the stream, if in the
25 Lower Basin.

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1 2. Whenever the natural flow of the
2 tributary is between its 2500 c.f.s. control
3 rate and its 4000 c.f.s. control rate, the
4 rate of flow required to be maintained shall
5 be twenty-five (25) per cent of the long-term-
6 average-yield of the stream, if in the Upper
7 Basin; and twenty (20) per cent of the long-
8 term-average-yield of the stream, if in the
9 Lower Basin.

10 Section 505. Provisions for Partial Diversions from Tributaries
11 of the Delaware River. Partial diversions of water from tributaries
12 of the Delaware River for domestic and municipal supply purposes
13 shall be subject to the following:

14 A. Whenever the natural flow of the tributary
15 under development at its point of development exceeds
16 its 3400 c.f.s. control rate, all or any part of such
17 natural flow may be withheld in storage reservoirs on,
18 or may be withdrawn from, such tributary, and be
19 diverted.

20 B. Whenever the natural flow of the tributary
21 under development at its point of development falls
22 below its 3400 c.f.s. control rate, the flow of the
23 tributary immediately below its point of development
24 shall be maintained at a rate at least equal to said
25 natural flow during the time it is below the 3400
26 c.f.s. control rate.

1 Section 506. Provisions for Complete Diversions from the Channel
2 of the Delaware River. Complete diversions of water from the channel
3 of the Delaware River for domestic and municipal water supply purposes
4 shall be subject to the following:

5 A. Whenever the actual flow of the Delaware River
6 at the point of development exceeds a rate of 0.59 c.s.m.,
7 equivalent to 4000 c.f.s. at Trenton, if in the Upper
8 Basin; or exceeds a rate of 0.50 c.s.m., equivalent to
9 3400 c.f.s. at Trenton, if in the Lower Basin; all or
10 any part of such actual flow in excess of the rates
11 hereinabove specified may be withdrawn from the river
12 and be diverted.

13 B. Whenever the actual flow of the Delaware River
14 at the point of development falls below a rate of 0.59
15 c.s.m., if in the Upper Basin, or falls below a rate of
16 0.50 c.s.m., if in the Lower Basin; no part of such
17 actual flow may be withdrawn from the river. In addi-
18 tion to this restriction, during the time that the
19 actual flow of the Delaware River is below the rates
20 hereinabove specified, water shall be released from
21 storage and be delivered into the Delaware River in
22 such a manner as to be available immediately below the
23 point of development. The amount of water so released
24 shall be determined by the following formula:

25 $R = DYK$, in which formula
26 "R" represents the amount of water to be so released,
27 in cubic feet per second.

1 "D" represents the drainage area in square miles which
2 would have been required to be developed on tribu-
3 taries within the Delaware River Basin in the
4 state involved in order to yield a quantity of
5 water equal to the rated capacity of the project
6 being developed on the river.

7 "Y" represents the long-term-average-yield of the
8 stream upon which storage is provided for the
9 purpose of making the prescribed release of water.

10 "K" represents 40 per cent, whenever the aforesaid
11 actual flow of the Delaware River at the point of
12 development is less than 0.37 c.s.m., and 20 per cent,
13 whenever the aforesaid actual flow is between 0.37
14 c.s.m. and 0.59 c.s.m. if in the Upper Basin, or
15 between 0.37 c.s.m. and 0.50 c.s.m. if in the
16 Lower Basin.

17 Section 507. Provisions for Partial Diversions from the Channel
18 of the Delaware River. The provisions of this article do not apply
19 to partial diversions from the channel of the Delaware River but the
20 Commission shall, nevertheless, make determination of the fact that
21 such proposed diversion is a partial diversion as herein defined.

22 Section 508. Provisions for Complete and Partial Diversions
23 from the Tributaries or the Channel of the Delaware River. Whenever
24 a project involving both complete and partial diversions
25 from either the tributaries of the Delaware River or the channel of
26 the Delaware River is undertaken, the provisions for complete and

1 partial diversions as herein prescribed shall apply to each kind of
2 diversion and to the respective quantities involved in each of such
3 diversions.

4 Section 509. Article to be Enforced by the Water Power and
5 Control Commission. The Commission is hereby designated as the
6 agency of the State of New York to administer and enforce compliance
7 with the provisions of this article and the rules and regulations
8 adopted under its authority. Should the Legislature by future
9 statute change this designation either generally or for some specific
10 case without making special reference to this article, such change
11 shall be deemed an amendment thereof. Should the Legislature by a
12 future act and without special reference to this article exempt any
13 such diversion from the provisions hereof, this article shall be
14 deemed to have been repealed.

15 Section 510. Powers and Duties of the Commission in relation
16 to the Delaware River Basin. The Commission shall have power and
17 authority to:

- 18 1. Adopt such rules and regulations for the
19 efficient administration of this article as it shall
20 find to be necessary.
- 21 2. Study, consider and determine upon a public
22 policy with regard to the conservation and protection
23 of the water resources of the Delaware River Basin
24 and the equitable and reasonable diversion of water
25 from the Delaware River and its tributaries.

1 3. Request the Interstate Commission on the
2 Delaware River Basin to cooperate and assist the
3 Commission in such surveys and investigations of
4 the water resources of the basin as the Commission
5 may undertake.

6 4. Request the Interstate Commission on the
7 Delaware River Basin to investigate, report on and
8 recommend the equipment necessary adequately to measure
9 all quantities and rates of streamflow necessary for
10 the proper enforcement of this article; to cooperate
11 and assist the Commission in the observation of the
12 operation of all developments and to recommend procedures
13 necessary to secure compliance with this article and its
14 purposes; to report and to recommend to the Commission
15 whether the quantity of water proposed for diversion
16 and use by a project in New York, New Jersey or
17 Pennsylvania is fair and equitable; to report and to
18 recommend to the Commission the manner in which water
19 may be diverted from the channel of the Delaware River
20 and its tributaries and specific rules and regulations
21 based on the principle of equitable apportionment and
22 reasonable diversion in compliance with this article.

23 5. Supply information and data on water diversions
24 from the Delaware River or its tributaries to the State
25 of New Jersey and the Commonwealth of Pennsylvania.

1 6. Continue, as a commission or by representation,
2 to confer with the Interstate Commission on the Delaware
3 River Basin and representatives of the other states
4 with regard to all of the above matters and the general
5 problem of the regulation and diversion of the waters
6 of the Delaware River Basin for water supply and
7 municipal purposes.

8 Section 511. Procedure for Obtaining the Approval of the Commis-
9 sion. The procedure for obtaining the consent and approval of the
10 Commission for any diversion project shall be that set forth in
11 articles eleven, twelve and thirteen of the conservation law or in
12 any pertinent amendment or addition thereto or any other present or
13 future statute authorizing such diversions by any person, as above
14 defined, and all applicable terms and provisions of all such
15 statutory provisions shall remain in full force and effect in such
16 cases, but in addition thereto before approving an application, the
17 commission must have made the additional determinations specified
18 in section five hundred three above. Upon receipt of an application
19 for approval of a diversion project as above defined, or before
20 making decision with regard to such diversion project in a case
21 wherein the Commission adopts such project, the Commission shall
22 send written notice to the proper agency of the Commonwealth of
23 Pennsylvania or the State of New Jersey outlining the proposed
24 diversion project, stating when and where the hearing thereon will
25 be held and asking approval thereof. At the hearing on such project

1 the other two states may appear, present testimony or make arguments
2 with regard to matters pertaining to this article. The Commission is
3 hereby authorized to receive and to consider written statements with
4 regard to these matters from the other states.

5 Section 512. Approval by the United States Supreme Court.

6 Whenever, acting under the provisions of this article, the Commission,
7 after having duly considered the views of the other states, shall
8 give its final approval to any diversion project, it shall forthwith
9 apply to the Supreme Court of the United States for approval of such
10 project and the decision and approval of the Commission shall be of
11 no force or effect unless and until the project has been approved by
12 the Supreme Court of the United States. In any case in which it is
13 required that the applicant bear the cost of the proceedings before
14 the Commission, the cost of the proceedings before the Supreme Court
15 also shall be borne by the applicant.

16 Section 513. Diversion Projects in Other States. Whenever the

17 Commission shall receive written notice, similar to that provided for
18 in section five hundred eleven above, from either of the other states
19 of the pendency of an application for approval of a diversion project
20 or the proposed adoption of such a project in either or both of these
21 states, the Commission shall study the matter, communicate and confer
22 with the proper authorities of the other states, attend hearings and
23 generally take all proper steps to protect the interests of this
24 state. As promptly as possible and not later than six months after

1 the receipt of such notice the Commission shall make a statement of
2 its findings with regard thereto to the interested state or states.
3 If the Commission shall find that the project is fair and equitable
4 to the State of New York and in accordance with the provisions of
5 this article, it shall prepare a statement to that effect and submit
6 it to the Governor for approval. On receipt of such approval the
7 other two states and the Attorney General shall be so advised.
8 Thereafter, when the other state submits such project to the Supreme
9 Court of the United States for approval, the Attorney General may by
10 stipulation or otherwise consent to an entry of an order by that Court
11 approving of such diversion.

12 Section 514. Enforcement. The Commission shall have the power
13 to bring such actions, suits or proceedings as in its judgment may
14 be necessary or proper to enable it to perform any of the duties
15 imposed on it by any of the provisions of this article or to prevent
16 the violation by any person or corporation, public or private, of any
17 of the provisions thereof.

18 Section 515. Project of the City of New York. The enactment of
19 this article shall not affect any right ^{of the City New York} accrued at the time this
20 article takes effect. All incomplete proceedings shall continue, but
21 in proper cases, as far as possible, shall be made to conform to the
22 provisions of this article. The City of New York by virtue of a
23 decision of the Water Power and Control Commission of April 25, 1929,
24 and a decree of the Supreme Court of the United States of May 4, 1931,

1 is now engaged in the construction of works for the complete diversion
2 of not to exceed four hundred forty millions of gallons daily from the
3 Neversink River and the East Branch of the Delaware River, subject to
4 various terms and conditions set forth in those documents. Authority
5 is hereby given for said city to apply to the Commission for modifica-
6 tion of said decision in accordance with the terms of this article and
7 said Commission may consider such application, make such modifications
8 if such are found to be suitable and apply to the Supreme Court of the
9 United States for modification of the said original decree accordingly.
10 No diversions from Delaware River Basin other than those authorized by
11 said decree of the Supreme Court may be carried out except under the
12 terms of this article.

13 Section 516. Saving Clause. The Legislature reserves the right
14 to amend or repeal all or any part of this article at any time, and
15 there shall be no vested right of any kind against such amendment or
16 repeal. All the rights, privileges, or immunities conferred by this
17 article, or by action taken pursuant thereto, shall exist subject to
18 the power of the Legislature to amend or repeal this article at any
19 time.

20 Section 517. Constitutional Construction and Severability. The
21 provisions of this article shall be severable and if any phrase,
22 clause, sentence or provision of this article is declared unconstitu-
23 tional or the applicability thereof to any person is held invalid,
24 the constitutionality of the remainder of this article and the
25 applicability thereof to other persons and circumstances shall not

out

1 be affected thereby. It is hereby declared as the legislative
2 intent that the article be construed liberally.

3 Section 518. Repeals. All acts or parts of acts inconsistent
4 with this article are hereby repealed.

5 Section 519. Effective Date. On approval of the enactment of
6 this article by the Governor, the Secretary of State shall certify
7 copies thereof to the Secretaries of State of New Jersey and
88 Pennsylvania with a request that similar acts enacted by those
9 states be certified to him. On receipt of certified copies of such
10 acts he shall determine whether in his judgment said acts contain
11 substantially the same provisions as to water supply diversion
12 projects to be constructed in the Delaware River Basin as those
13 herein contained. Should he so find with regard to enactments by
14 both the Commonwealth of Pennsylvania and State of New Jersey, he
15 shall so certify to the Governor, the Water Power and Control Commis-
16 sion and the Secretaries of State of the other two states. This
17 article shall become fully effective on the first day of January
18 next succeeding such certification. Unless such certification shall
19 be made within five years of the date of the approval of this amend-
20 ment by the Governor of the State of New York, this article shall be
21 of no further force or effect.

Incodel Calendar
Business Meeting

NUMBER III:

Report of Committee on "Quantity"

STATEMENT:

See attached copy.

ACTION REQUIRED:

Review, discussion, suggestions, and approval.

ACTION RECOMMENDED:

By:

ACTION TAKEN:

N.J. STATE LIBRARY
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MORRISTOWN, NJ 08625-0520

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

INFORMAL STAFF REPORT

ADVISORY COMMITTEE ON QUANTITY OF WATER

New York, New York

December 15, 1942

Since the last Commission meeting, in addition to studies relative to the Incodel water supply diversion bill, the activities of the staff have been centered upon two projects: (1) The analysis of the possibilities of multiple-purpose water resources developments in the Delaware River Basin; and, (2) The extension of the study concerning the development of supplementary sources of industrial water supply for the areas adjoining the tidal section of the Delaware River for use during periods of salinity invasions.

The study of multiple-purpose reservoir developments has been brought to a tentative conclusion, the results being included in a progress report attached as a separate item of the agenda for this meeting.

Regarding the industrial water supply project, it will be recalled that a previous survey and report was made of this situation. From it, it was found that the salinity problem as it affected the industrial water supply of the area in the vicinity of Marcus Hook could be solved effectively and economically by the construction of a reservoir on Naamans Creek. Sufficient water could be impounded to obviate the necessity of using water from the Delaware River during periods of salinity invasion. Such a supplementary supply would serve the needs of industries such as the Sun Oil Company, the American Viscose Corporation, the Sinclir Refining Company, and the General Chemical Company. Its cost would approximate \$1,200,000, of which it seems possible a considerable portion could be properly allocated to the value of the reservoir for recreational purposes.

The purpose of the extension of this study has been to determine whether a similar development could be constructed in the Chester area to meet the requirements of industries such as the Scott Paper Company and the Aberfoyle Manufacturing Company. It has been found that a reservoir could be built on Crum Creek at a point approximately one-half mile below Chester Road (Penn Highway No. 320) from which about five million gallons of water a day could be obtained from the natural flow of the stream during periods of salinity invasion. It is believed that this would be sufficient to supplant the use of water normally taken directly from the River for independent industrial supplies in the Chester area. It is estimated that the cost of the project would be less than \$1,000,000 (about \$800,000). This is equivalent to 16.5 cents per thousand gallons and compares with damages estimated to amount to 25 to 40 cents per thousand gallons of water used.

The staff plans to continue its survey and to present a single report at an early future date covering the results of the investigation in its entirety.

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

FOURTH PROGRESS REPORT

regarding

A STUDY OF MULTIPLE PURPOSE DEVELOPMENTS IN THE DELAWARE RIVER BASIN

November 16, 1942

FOREWORD

This is the fourth progress report of the Incodel staff of a study of the possibilities of multiple use development of the water resources of the Delaware River Basin. It supersedes the previous report dated July 22, 1942; supplements the earlier reports submitted July 25, 1941 and December 16, 1941; and brings the investigation to a tentative conclusion at this time. The staff has assembled and coordinated all of the studies under one cover, copies of which are now available.

REVIEW

The first two of the previous reports presented an analysis of a proposal advanced in the "308" Report of the United States Engineer Office of the War Department to construct a series of three dams and reservoirs in the Delaware River--one at Tocks Island, one at Belvidere and one at Chestnut Hill--for the development of water supply and for water power primarily, and incidentally, for flood control, river flow regulation and other purposes.

The Army Engineer Office concluded that this project would be economically attractive in respect to water supply and water power, estimating a profit from the latter of about \$600,000 per year.

This office did not agree with the United States Engineer Office conclusions. It made the following findings:

1. That the project would have no value as a source of domestic water supply during the period covering the next twenty-five years because other major projects to meet the water supply requirements of Philadelphia and New York City are under construction; and New Jersey's next additional supply obviously would be obtained from local and more favored sources.
2. That the project would be economically unattractive for the development of power by private interests.
3. That the development of water power alone by a public agency would result in an average annual deficit of approximately \$500,000.
4. That the value of the proposed project for the reduction of salinity in the section of the river bounding the highly industrialized areas between Philadelphia and the Pennsylvania-Delaware boundary line would be approximately \$175,000 per year.

RESULTS OF PRESENT STUDY

The third study and the present study have extended the analysis to include the period subsequent to the next twenty-five years when it is probable that the states--New York, New Jersey and Pennsylvania--will again be confronted with the problem of supplying more adequate or suitable sources of water supply for their metropolitan areas.

The results indicate that when and if water supplies are required in addition to those now under construction or contemplation in Pennsylvania and New Jersey, the proposed Tocks Island group of reservoirs project would constitute an attractive source; the construction of a project for multiple

uses--primarily for water supply and water power--probably would be found to be economically attractive.

Preliminary to the analysis of a multiple purpose project it has been necessary to determine the cost (or value) of each of the more important uses as individual projects. The results are given below under their respective headings.

WATER SUPPLY

As has been previously pointed out, the highest use of Delaware River water is for domestic water supply; it has precedence over all other uses.

A study of the Philadelphia water problem made several years ago by a Commission appointed by the mayor concluded that of all the proposals which had been advanced for a new supply from upland sources for the City, the project to develop a reservoir on the Delaware River at Tocks Island was the most economical.

A reservoir at this location for water supply purposes alone is estimated to cost \$12,000,000; and the total construction cost of the water supply project, including supplementary dams and reservoirs, conduit, filtration plant and other appurtenant works would amount to about \$150,000,000. This would provide a supply of about 550 million gallons a day from the Tocks Island reservoir, and 91 million gallons from two other reservoirs on the Neshaminy and Tohickon Creeks.

If New Jersey also required an additional supply at approximately the same time as Philadelphia, the 550 million gallons available from the Tocks Island project group could be distributed to the two governmental subdivisions in accordance with their respective needs, say for example, 400 million gallons to Philadelphia, and 150 million gallons for New Jersey. According to present estimates, the cost, on a million gallons per day bases, would be about \$250,000 under each of the two above alternatives.

WATER POWER

The cost of the three dams and reservoirs--Tocks Island, Belvidere and Chestnut Hill--if constructed for water power alone would be about \$20,000,000, and the total cost of construction of the water power project including power house and equipment and transformation and transmission facilities, would be \$30,000,000 for a fifty per cent load factor plant. Such a plant, even if constructed by a public agency which could secure capital at low interest rates and might be exempted from a portion of taxes, would not show a profit. It is estimated that the operation of the project for power alone would result in a deficit of about \$200,000 per year.

RECREATION

While no scientific formula for estimating the value of the proposed reservoirs has been developed, it is believed that an expenditure greater than \$1,000,000 could not be economically justified for reservoirs for recreational purposes alone such as those under consideration which would be subject to fluctuating summer-time water levels. However, it would be possible to keep the water of the three reservoirs on the river at a practically uniform level by providing a supplementary reservoir on one of the Delaware River tributaries from which water could be released to make up for the amount of water drawn from storage in the Tocks Island group for the production of power. Under such circumstances it is believed that an expenditure of \$2,000,000 for recreational purposes alone might be justified. The cost of such a supplementary reservoir is estimated to be \$4,500,000.

SALINITY

Recent studies of the salinity problem in the lower Delaware River indicate that the harmful effects of salinity can be overcome at a cost of about \$3,000,000 by the construction of local works to provide supplementary

industrial water during periods of salinity invasion. Since the proposed Tocks Island group of reservoirs would only reduce the effects of salinity by about thirty-three per cent, the value of such reservoirs for this purpose alone would not seem to be more than one-third of the \$3,000,000 estimated to be required to correct salinity conditions by providing supplementary supplies of industrial water, or about \$1,000,000.

MULTIPLE USES

Analyzing the proposed Tocks Island group of reservoirs as a single project constructed and operated for multiple purpose uses gives the following results.

Water Supply

There are innumerable ways under which the proposed Tocks Island group of reservoirs could be operated as a multiple-purpose development, particularly in respect to water supply and water power, the two most important uses.

Since the highest use of the waters of the Delaware is for domestic water supply and takes precedence over all others, the operation of the project for this purpose would be the principal controlling factor.

It is impossible, of course, to foretell whether at some future date Philadelphia alone, or Philadelphia and northeastern New Jersey jointly, in order to obtain new or additional water supplies would be interested in participating in the development of the Tocks Island group of projects. It is believed for New Jersey alone the project would not be economically attractive. Lacking any method to determine the future water supply requirements of these areas, it has been necessary to build the multiple-use study around two sets of hypothetical possibilities. The first is predicated upon the assumption of a future supply for Philadelphia alone of 550 million

gallons daily from the Tocks Island development augmented by an additional 91 million gallons from supplementary projects on the Tohickon and Neshaminy Creeks. The second assumes a supply of 400 million gallons a day from the Tocks Island development for Philadelphia supplemented by 91 million gallons en route and 150 million gallons for northeastern New Jersey.

It is obvious that the needs of the respective areas could result in many other combinations.

The above supplies could be obtained in a variety of ways. For example the water could be taken directly from any one of the reservoirs and be delivered by conduit to its destination. On the other hand it could be allowed to flow, as water in transit, through the reservoirs and down the channel of the Delaware to be picked up at a lower point, such as the Delaware and Raritan Canal feeder outlet at Stockton for New Jersey, or at Yardley above Trenton for Philadelphia. The choice would rest with the interested authorities and, undoubtedly, be weighted largely upon the basis of the quality and cost of the water supply. Each method would involve a different set of results concerning the economies of the project for the development of power.

Eight possibilities regarding the use of the Tocks Island project group for water supply have been analyzed. In addition to the supply resulting from the Tocks Island development, the Philadelphia project includes, in each case, an additional supply of 91 million gallons from supplementary sources. The alternative projects are as follows:

Plan 1A - 550 M.G.D. from Tocks Island for Philadelphia.

Plan 1B - (400 M.G.D. from Tocks Island for Philadelphia.
(150 M.G.D. from Tocks Island for New Jersey.

Plan 2A - (Same as Plans 1A and 1B with the addition of supplementary
Plan 2B - (reservoir on Flat Brook for maintenance of full reservoirs
(in the summertime for recreational purposes.

Plan 3A - 550 M.G.D. from Delaware River at Yardley for Philadelphia.

Plan 3B - (400 M.G.D. from Delaware River at Yardley for Philadelphia.
(150 M.G.D. from Tocks Island for New Jersey.

Plan 4A - 550 M.G.D. from Chestnut Hill Reservoir for Philadelphia.

Plan 4B - (400 M.G.D. from Chestnut Hill for Philadelphia.
(150 M.G.D. from Tocks Island for New Jersey.

It will be noted that it has been assumed that Philadelphia might get its water either from Tocks Island, or from the Delaware River at Yardley, or from the Chestnut Hill Reservoir. These appear to be the three most probable methods. Getting water directly from Tocks Island appears to be most advantageous for New Jersey.

The estimated cost of each of these water supply reservoir projects was determined by applying the unit cost used by the Army Engineers for the Tocks Island reservoir to the required capacity of the water supply reservoirs as computed on the basis of the rules promulgated by Incodel for water supply diversion projects. The results are shown on the following tabulation.

Plan	<u>Estimated Cost of Water Supply Reservoirs</u>			
	<u>Philadelphia</u>		<u>New Jersey</u>	<u>Total</u>
	<u>550 M.G.D.</u>	<u>400 M.G.D.</u>	<u>150 M.G.D.</u>	<u>550 M.G.D.</u>
Plan 1A	\$ 11,800,000	\$ ---	\$ ---	\$ 11,800,000
Plan 1B	---	8,600,000	4,300,000	12,900,000
Plan 2A	11,800,000	---	---	11,800,000
Plan 2B	---	8,600,000	4,300,000	12,900,000
Plan 3A	9,200,000	---	---	9,200,000
Plan 3B	---	6,150,000	3,650,000	9,800,000
Plan 4A	11,400,000	---	---	11,400,000
Plan 4B	---	7,830,000	3,650,000	11,480,000

The total cost under each of the "B" plans is somewhat greater than under the "A" plans although the amount of water involved is the same. The difference reflects the additional expense involved in the "complete diversion" of the New Jersey supply under the "B" plan. In the case of the "A" plans the diversion is "partial" since the entire supply is assumed to be for Philadelphia.

The total cost of the Tocks Island, Chestnut Hill and Belvidere reservoirs as estimated by the Army Engineers in their "308" Report on the Delaware would be \$19,807,000. To this should be added \$2,000,000 for additional clearing if the reservoirs are to be used as a direct source of water supply in combination with their use for power. Except under Plan 3A such direct joint use has been assumed in all of the above cases.

As stated in previous sections of this report, the value of the reservoir projects for recreational purposes (without the provision for a supplementary reservoir) and for the control of salinity in the lower Delaware, would amount to about \$2,000,000; \$1,000,000 for each purpose. Under Plan 2A and 2B provision was made for the operation of a supplementary reservoir on Flat Brook in order to keep the water in the three Delaware River reservoirs at a relatively uniform level during the summer-time vacation season. The cost of the supplementary reservoir is estimated to be \$4,500,000. Its operation would add approximately \$1,000,000 to the value of the project for recreational purposes. The remaining \$3,500,000 has been charged to the use of the project for water supply purposes since it has been found that this additional item of cost would be offset by a corresponding decrease in the cost of the water supply conduit from Tocks Island to Philadelphia because of the greater operating head resulting from the higher reservoir levels.

In distributing the costs of the reservoir projects, to the various multiple purposes, \$1,000,000 each has been allocated to recreation and to

salinity control, except under Plans 2A and 2B in which the allocation to recreation is \$2,000,000.

The balance of the total cost of the reservoirs has been allocated to water supply and to water power in proportion to what would have been the respective cost of reservoirs for each use if constructed independently.

The results are as follows:

<u>Plan</u>	<u>Allocation of Costs of Tocks Island Project To Water Supply and Water Power</u>		
	<u>Water Supply</u>	<u>Water Power</u>	<u>Total</u>
1A	\$ 7,400,000	\$ 12,407,000	\$ 19,807,000
1B	7,800,000	12,007,000	19,807,000
2A	10,900,000	12,407,000	23,307,000*
2B	11,300,000	12,007,000	23,307,000*
3A	6,100,000	11,707,000	17,807,000**
3B	6,600,000	13,207,000	19,807,000
4A	7,200,000	12,607,000	19,807,000
4B	7,300,000	12,507,000	19,807,000

* Includes \$3,500,000 for supplementary reservoir on Flat Brook.

** Does not include an additional \$2,000,000 for reservoir clearing since no water is to be taken directly from Tocks Island reservoir for water supply.

Being only for reservoirs, the above costs do not represent the entire cost of either the water supply or the power projects. In the following tabulation are presented the estimated construction costs for the respective water supply projects included under each alternative plan:

Plan	Estimated Cost of Water Supply Projects				
	Philadelphia		New Jersey		Total
	641 M.G.D.	491 M.G.D.	150 M.G.D.	641 M.G.D.	
1A	\$ 145,737,000	---	---		\$ 145,737,000
1B	---	\$123,317,000	\$5,082,000		158,399,000
2A	145,537,000	---	---		145,537,000
2B	---	122,737,000	35,472,000		158,209,000
3A	92,880,000	---	---		92,880,000
3B	---	81,167,000	36,055,000		117,222,000
4A	107,510,000	---	---		107,510,000
4B	---	93,490,000	34,782,000		128,272,000

Examination of these figures shows that there is very little variation in the estimates for the 150 million gallons a day for New Jersey. The supply in each case is taken from Tocks Island reservoir and delivered to a proposed distribution reservoir near Morristown.

Similarly, the difference for the Philadelphia supply from Tocks Island Reservoir under Plans 1 and 2 is inconsequential. These supplies are assumed to be delivered at Queen Lane, elevation 238. In contrast under Plans 3 and 4, the water is delivered to Torresdale, elevation 25.

Under Plans 3A and 3B, the Philadelphia supply is pumped from the Delaware River at Yardley to a reservoir on Neshaminy Creek. The annual cost to pump this water is estimated to amount to \$452,000 for the 550 million gallons a day under Plan 3A, and to \$329,000 for the 400 million gallons under Plan 3B. From the reservoir on Neshaminy Creek the water is delivered by gravity to Torresdale.

The supply for Philadelphia under Plans 4A and 4B is delivered from the Chestnut Hill reservoir to Torresdale by gravity.

It has not been the purpose of this study to decide which of the alternative water supply projects is the most desirable. In order to do this, it

would be necessary to carefully compare each as to quality of water and as to annual fixed charges and operating costs. Consideration also, no doubt, would be given to the relative merits of the project in respect to its other uses, particularly water power. In each case, however, the cost of the water supply project would be approximately \$4,000,000 less as a part of a multiple purpose development than if constructed independently.

Water Power

Using the costs allocated to water power shown on page 9, the total estimated cost of the power projects on a 50 per cent load factor basis and also at 25 per cent load factor would be as shown on the following tabulations:

<u>Plan</u>	<u>Estimated Cost of Construction of Water Power Projects</u>	
	<u>50% load factor</u>	<u>25% load factor</u>
1A	\$ 20,025,600	\$ 26,834,100
1B	19,625,600	26,434,100
2A	19,917,000	26,670,000
2B	19,517,000	26,270,000
3A	22,342,000	32,071,000
3B	22,722,100	31,771,200
4A	22,622,000	31,786,000
4B	21,970,000	30,603,300

The annual production of energy under each of the plans on a 50 per cent and 25 per cent load factor basis is estimated to be as follows:

<u>Plan</u>	<u>Estimated Annual Production of Energy in KWH</u>	
	<u>50% load factor</u>	<u>25 % load factor</u>
1A	361,620,000	484,980,000
1B	361,620,000	484,980,000
2A	362,530,000	492,700,000
2B	362,530,000	492,700,000
3A	484,500,000	612,700,000
3B	455,600,000	587,300,000
4A	457,400,000	585,500,000
4B	435,000,000	566,900,000

The value of this energy, assuming a market for all of the primary energy and two-thirds of the secondary energy, has been appraised on the basis of the estimated cost of producing an equal amount of energy in a steam-electric plant in the same manner as described in the earlier reports.

The results are as follows:

<u>Plan</u>	<u>Estimated Value of Energy Produced</u>	
	<u>50% load factor</u>	<u>25% load factor</u>
1A	‡ 1,554,500	‡ 2,556,200
1B	1,554,500	2,556,200
2A	1,540,600	2,543,000
2B	1,540,600	2,543,000
3A	2,184,200	3,549,400
3B	2,033,000	3,317,600
4A	2,057,800	3,354,300
4B	1,937,500	3,158,400

Also in the same manner as described in the earlier reports the estimated cost of producing the energy was based upon fixed charges on the portion of the cost of dams and reservoirs allocated to power plus fixed charges and operating expenses for the required power houses and equipment and for a one hundred mile transmission line. The results are:

<u>Plan</u>	<u>Estimated Cost of Production of Energy</u>	
	<u>50% load factor</u>	<u>25% load factor</u>
1A	\$ 1,582,200	\$ 2,239,200
1B	1,554,200	2,211,200
2A	1,572,200	2,223,300
2B	1,544,200	2,195,300
3A	1,825,200	2,765,800
3B	1,859,800	2,734,500
4A	1,828,700	2,715,600
4B	1,767,400	2,601,600

The difference between the value of the energy and the cost to produce it indicates whether or not the project would be economically attractive. These results are shown in the following tabulation, a plus sign indicating a profit and a minus sign, a deficit.

<u>Plan</u>	<u>Annual Profit or Deficit</u>	
	<u>50% load factor</u>	<u>25% load factor</u>
1A	- \$ 27,700	+ \$ 317,000
1B	+ 300	+ 345,000
2A	- 31,600	+ 319,700
2B	- 3,600	+ 347,700
3A	+ 359,000	+ 783,600
3B	+ 173,200	+ 583,100
4A	+ 229,100	+ 638,700
4B	+ 170,100	+ 556,800

Summary

From the foregoing analyses of the use of the Tocks Island group of reservoirs jointly for water supply when next needed by Pennsylvania and New Jersey, and for water power, it has been found that the project might constitute an attractive and acceptable source of water supply. Its cost would be approximately \$4,000,000 less as part of a multiple purpose development than if constructed as an independent source of supply.

Additionally, on a 50 per cent load factor basis, since it may be said that the indicated deficits under Plans 1 and 2 are insignificant, the project would be profitable under all of the water supply plans considered herein. Any load factor better (less) than 50 per cent would result in larger returns from the operation of the power development.

The most favorable return from the power development would be under Plan 3 in which the water supply for Philadelphia is allowed to flow through the power plants, pass into the Delaware River as "water in transit", and be recovered in the lower non-tidal section of the river near Trenton. The next most attractive operation in respect to power would obtain from Plan 4 in which the Philadelphia supply is taken from the lowest of the three reservoirs, Chestnut Hill.

The development also would have a capital value of approximately \$1,000,000 for the control of salinity invasions in the tidal section of the River below Philadelphia. Its value for recreation is estimated to be about \$2,000,000 under Plan 2 in which provision is made for a supplementary reservoir on Flat Brook for the maintenance of the levels of the reservoirs on the main river during summer vacation periods. Under the other plans, in which the Tocks Island reservoir would be subject to summer-time fluctuating levels the value would be about \$1,000,000.

As brought out in the earlier reports, the project also would have value for flood control, stream flow regulation, navigation and agriculture. The total benefits to these uses are not believed to be large, however.

Objections may be raised to the project on the grounds that its use for the development of power would displace an equivalent load which would otherwise be met by a steam-electric plant fuelled with coal, one of Pennsylvania's important and abundant natural resources. While this is theoretically true, it is also a fact that a corresponding and concurrent increase in steam-electric facilities would be required coincident with the proposed hydro-electric project, if the latter is to be assumed necessary and advisable.

Conclusion

If, when Pennsylvania and New Jersey are required to develop new or additional water supplies in the future, the upper Delaware River above Easton is deemed to be an acceptable source, the development of the Tocks Island project for multiple-use purposes will be desirable and economically attractive.

* * *

Inco del Calendar
Business Meeting

NUMBER IV: Report of Committee on "Quality"

STATEMENT: See attached copy

ACTION REQUIRED: Review, discussion, suggestions
and approval.

ACTION RECOMMENDED:

By:

ACTION TAKEN:

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

INFORMAL STAFF REPORT

INCODEL ADVISORY COMMITTEE ON QUALITY

New York, New York
December 15, 1942

At various times during the past year the Commission has been informed of a series of legal cases pending in the State of New Jersey in which the legality and constitutionality of the Incodel Water Pollution Act is to be decided.

To bring the Commission completely up-to-date in these activities, the summary statements which follow indicate the present status of proceedings against New Jersey communities and industries in the lower Delaware River Basin.

Beverly, N.J. (Beaunit Mills, Inc.) re: Discharge of trade wastes through city-owned storm sewer.

Notices issued on May 12, 1942, under R.S. 58:12 (State Sewerage Act) and Chapter 146, P.L. 1939 (Incodel Act), required cessation of the discharge of polluting material into the Delaware River on or before August 31, 1942 unless treated in accordance with the provisions of the Incodel Act for Zone II.

The Department was served with a subpoena on August 15, 1942, commanding it to answer a Bill of Complaint filed by Beaunit Mills, Inc. on appeal from the aforementioned notices.

City of Beverly, N.J. re: Discharge of trade wastes from Beaunit Mills, Inc. through city-owned Cooper Street storm sewer.

Notices issued on May 12, 1942, under R. S. 58:12 (State Sewerage Act) and Chapter 146, P.L. 1939 (Incodel Act), to cease the discharge of polluting material into the Delaware River prior to August 31, 1942 unless treated in accordance with Incodel standards for Zone II. These notices superseded former notices issued on November 14, 1939.

On September 5, 1942 Vice-Chancellor Jaynes gave the City of Beverly permission to become a party to the pending suit of Beaunit Mills, Inc. vs. Department of Health of the State of New Jersey.

At a meeting of the Department of Health on September 8, 1942 it was on motion voted to request the Attorney General to take the necessary

steps to secure compliance by the City of Beverly with the Department's notices of May 12, 1942. The City of Beverly has recently filed an answer to the Bill filed by Beaunit Mills, Inc. The State has not answered the above Bill. The Department of Health and the City of Beverly are now joint defendants in the Beaunit Mills, Inc. vs. Department of Health of the State of New Jersey.

City of Camden and City of Gloucester re: Discharge of raw sewage from twenty-six outlets owned by the City of Camden and ten outlets owned by the City of Gloucester into the waters of the Delaware River, Cooper River, and Newton Creek.

Notices issued on November 14, 1939, under R.S. 58:12-2 (State Sewerage Act) and Chapter 146, P.L. 1939 (Incodel Act), to cease the discharge of polluting material into the Delaware River, Cooper River, and Newton Creek, prior to November 1, 1941 unless treated in accordance with the Incodel standards for Zone III.

On November 12, 1941 the Department of Health requested the Attorney General to institute the necessary proceedings to compel the City of Camden and the City of Gloucester to comply with the provisions of the above-mentioned notices.

The Bill of Complaint in the Department of Health of the State of New Jersey vs. City of Camden and City of Gloucester was filed on January 26, 1942.

On February 16, 1942 the City of Camden and City of Gloucester filed separate answers to the above-mentioned Bill of Complaint.

On November 25, 1942 notices of motion to strike defendants' answers were served on the Attorney for the City of Camden and the Attorney for the City of Gloucester - hearing to be held on January 11, 1943.

Borough of Palmyra, N.J. re: Discharge of improperly treated sewage into the waters of the Delaware River from the sewage treatment plant owned and operated by the Borough of Palmyra.

On July 9, 1940 notices were issued under Chapter 146, P. L. 1939 (Incodel Act) and R. S. 58:12 (State Sewerage Act) prohibiting the discharge of improperly treated sewage into the waters of the Delaware River after June 1, 1942 unless treated in accordance with the requirements for Zone III established by Chapter 146, P.L. 1939.

On September 8, 1942 Members of the Department of Health of the State of New Jersey on motion voted to refer the notices issued under Chapter 146, P.L. 1938 and R. S. 58:12 to the Attorney General for prosecution.

October 23, 1942 the engineer for the Borough of Palmyra advised that the Attorney General had notified the Borough of Palmyra of the pending suit and claimed that Palmyra had not been notified of the Department's action.

Borough of Palmyra (Cont'd.)

On October 27, 1942 the Department advised the engineer for the Borough of Palmyra relative to the past actions of the Department.

On November 12, 1942 the Attorney General was advised by the engineer of the Borough of Palmyra that the Borough is to make certain improvements to comply with the Department's requirements, but, that the consummation of the project would depend upon priorities.

On November 8, 1942 the Attorney General was advised not to discontinue the case because: (1) required priorities cannot be determined until plans have been submitted to, and approved by, the Department; and, (2) an engineer cannot bind the municipality. No bill has been filed in this case.

Township of Riverside re: Discharge of improperly treated effluent from municipally-owned sewage treatment plant.

Notices issued on July 9, 1940 under the provisions of R.S. 58:12 (State Sewerage Act) and Chapter 146, P.L. 1936 (Incodel Act) to cease the discharge of polluting material into the waters of the Delaware River prior to June 1, 1942 unless treated in accordance with the Incodel standards for Zone II.

A notice also issued on July 9, 1940 requiring compliance with the provisions of Article 1, R. S. 58:10 (Potable Water Act).

On September 8, 1942 the Attorney General was requested to institute the necessary proceedings to compel the Township of Riverside to comply with the terms of the above-mentioned notices. No bill has been filed in this case.

On October 13, 1942 plans and other engineering data for alterations and additions to the sewage treatment plant were approved by the Department subject to special provisos, among which was one requiring compliance with the provisions of Chapter 146, P. L. 1939 for Zone II.

Florence Thread Company, Inc. and Township of Riverside re: Discharge of industrial wastes from the Florence Thread Company, Inc. through municipally owned storm sewer with outlet at the foot of Monroe Street into Tar Kiln Run, a tributary of the Delaware River.

On July 9, 1940 notices were issued against both the Florence Thread Company, Inc. and the Township of Riverside prohibiting the discharge of polluting material from the storm sewer owned by the Township of Riverside in violation of Article 1, R. S. 58:10 (Potable Water Act).

On May 12, 1942 notices issued under the provisions of Chapter 146, P. L. 1939 (Incodel Act) and R. S. 58:12 (State Sewerage Act) requiring that the Township of Riverside and the Florence Thread Company, Inc. cease, prior to August 31, 1942, the discharge of untreated trade wastes and other polluting material into the waters of the Delaware River unless said wastes were treated in accordance

with the provisions of Chapter 146, P. L. 1939 (Incodel Act) for Zone II. (These latter notices superseded similar ones previously issued on July 9, 1940.)

Following an inspection of June 16, 1942 the Department of Health of the State of New Jersey at a meeting held on September 8, 1942 on motion voted to request the Attorney General to institute the necessary proceedings to require the Florence Thread Company, Inc. and the Township of Riverside to comply with the provisions of the above-mentioned notices. No bill has been filed in this case.

Borough of Riverton re: Discharge of raw sewage from sewer outlets located at the foot of Main Street and the foot of Linden Street discharging raw sewage into the waters of the Delaware River.

On November 14, 1939 notices issued under the provisions of Chapter 146, P. L. 1939 (Incodel Act) and R. S. 58:12 (State Sewerage Act) prohibiting the discharge of raw sewage into the waters of the Delaware River after November 1, 1941 unless treated in accordance with the requirements for Zone III established by Chapter 146, P. L. 1939.

On January 13, 1942, following several requests on the part of the Borough of Riverton for an extension of time, the Department of Health of the State of New Jersey on motion voted to grant no further extension of time to comply with the above notices and referred the case to the Attorney General.

On March 27, 1942 the Borough of Riverton made application to the Department for an approval of plans for a collecting sewer and pumping station to pump the sewage being discharged at the foot of Linden Street and the foot of Main Street into the sewer system and treatment plant serving the Borough of Palmyra.

On April 6, 1942 the Department advised the engineer of the Borough of Riverton that the Department could not act on the above-mentioned plans until a joint project between the Boroughs of Riverton and Palmyra were submitted, including treatment to meet the Incodel standards. No bill has been filed in this case.

Borough of Swedesboro re: Discharge of untreated domestic sewage through a storm sewer located in the rear of #35 Franklin Street.

On July 9, 1940 notices issued requiring the Borough of Swedesboro to cease, prior to June 1, 1942, the discharge of polluting material into the waters of Nariticon Branch of Raccoon Creek, tributaries of the Delaware River; said notices issued under the provisions of R. S. 58:12 (State Sewerage Act) and Chapter 146, P. L. 1939 (Incodel Act).

At a meeting of the Department of Health of the State of New Jersey held on September 8, 1942 the Attorney General was requested to institute the necessary proceedings to secure compliance with the above-mentioned notices. No bill has been filed in this case.

Swedesboro Sewer Company, Swedesboro, N. J. re: Discharge of raw sewage from three outlets owned and operated by the Swedesboro Sewer Company into the waters of the Nariticon Branch and Raccoon Creek, tributaries of the Delaware River.

At a meeting of the Department of Health of the State of New Jersey held on July 9, 1940 notices issued pursuant to the provisions of R. S. 58:12 (State Sewerage Act) and Chapter 146, P. L. 1939 (Incodel Act) prohibiting the discharge of polluting material into the waters of the Raccoon Creek, a tributary of the Delaware River, prior to June 1, 1942 unless treated in accordance with the provisions of Chapter 146, P. L. 1939.

On September 8, 1942 the Department of Health of the State of New Jersey on motion voted to refer the above case to the Attorney General. No bill has been filed in this case.

Incodel Representation

As agreed upon, some months ago, Incodel is to be represented in the Chancery Court proceedings by Mr. Duane Minard of the firm of Hobart, Minard and Cooper, Newark. A brief upholding the constitutionality of the Incodel Pollution Act has been prepared and Mr. Minard will appear in court, in our behalf, for oral argument.

* * *

Incode1 Calendar
Business Meeting

NUMBER V:

Finances

STATEMENT:

See attached statements.

ACTION REQUIRED:

Review, discussion, suggestions,
and approval.

ACTION RECOMMENDED:

By:

ACTION TAKEN:

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

REPORT OF THE INCODEL TREASURER

Incodel Business Meeting
New York City, New York
December 15, 1942

The Incodel audit of financial transactions occurring during the past fiscal year has been completed and is presented separately for your consideration.

You will recall that an interim audit, running through February of this year, was submitted at the March meeting of the Commission. The material included and covered in the annual audit projects that examination to the end of the fiscal year and, in addition, contains tabulations summarizing the condition of all funds at the close of the period.

On the attached page you will find several book-keeping adjustments recommended by the auditor which it will be necessary for the Commission to approve. The only major item of expense is that of \$250.00, representing the balance due on the State of Delaware's appropriation of \$2,500.00 for the fiscal year 1941-42. The Commission has, in the past, approved of assessing such balances to "expenses of Delaware Commissioners in attending Incodel meetings". For book-keeping purposes it is of course necessary to indicate an approved disposition of these funds.

Other adjustments recommended are for purposes of adjusting expenditures to their proper budget allocations.

Under May, 1942, the Commission approved as an account current and payable a \$60.00 item for temporary stenographic services in connection with the Water Conservation Campaign. Since all receipts and expenditures for this special activity were not anticipated at the time of the adoption of the budget, and

2.

the inclusion of the particularly heavy printing costs would have thrown our regular budgetary item for that purpose considerably out of balance, it was later decided to carry these transactions as a separate budget item. This was done and approved at the Annual Business Meeting in July.

Accounts current and payable for September, October, and November are separately listed for approval.

Respectfully submitted,

David W. Robinson
Treasurer

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

ADJUSTMENTS REQUIRED ON APPROVAL SHEETS

	<u>Approvals Over</u>	<u>Approvals Short</u>
<u>March, 1942</u>		
Supplies:		
A. Pomerantz & Company	\$ 39.01	\$
<u>April, 1942</u>		
Supplies:		
Renninger & Graves		4.59
Travel:		
James H. Allen (Check No. 3668 - Notary Fees)		3.00
Conferences:		
Penn-Harris Hotel		21.11
Miscellaneous and Contingent:		
David W. Robinson - Petty Cash	1.35	
<u>May, 1942</u>		
Salaries:		
Temporary stenographic services (approved under Water Conservation Campaign expenses)	60.00	
Secretary-Stenographer (Miss Moore)		7.50
Telephone and Telegraph:		
Western Union	3.21	
Travel:		
David W. Robinson, May 4, Harrisburg		1.10
Conferences:		
James H. Allen		4.60
Miscellaneous and Contingent:		
James H. Allen		2.20
<u>June, 1942</u>		
Postage and Express:		
James H. Allen		3.00
Telephone and Telegraph:		
Western Union		2.27
Conferences:		
Expenses of Delaware Commissioners		250.00
Miscellaneous and Contingent:		
Mushroom Transportation Company	1.06	
Peerless Towel Supply Company	1.40	
	<hr/>	<hr/>
TOTALS	\$106.03	\$299.37

September, 1942

INCODEL ACCOUNTS

CURRENT AND PAYABLE
(Except where noted)

Classified in Budget Form

I. Personal Services: (Due September 15 and September 30):

1. Commission Executive Secretary	\$ 350.00
2. Engineer	350.00
3. Assistant Engineer	175.00
4. Office Secretary	<u>125.00</u>
	\$ 1,000.00

II. Other Expenses:

1. Rent (Due September 1)	150.00
2. Equipment.	
3. Supplies:	
A. Pomerantz & Company.	7.73
Renninger & Graves.	2.50
4. Printing	
5. Postage and Express.	23.00
6. Telephone and Telegraph:	
Bell Telephone Company of Pennsylvania.	42.68
Western Union Telegraph Company90
7. Travel: staff and employees:	
David W. Robinson:	
August 20, Trenton	4.66
September 14, Harrisburg	10.15
September 15, New York City.	11.10
September 21, Newark	6.55
September 23, New York	8.40
September 26, Woodbury	1.15
September 28-29, Trenton, Newark, New York.	<u>19.30</u>
	61.31
James H. Allen:	
September 9, Harrisburg.	9.21
September 11, Trenton.	3.82
September 15-16-17, Morristown, Reading, Phoenixville.	21.89
September 23-24, Local Army Engineers...	1.95
September 28, New York	10.51
September 30, Harrisburg	<u>9.61</u>
	56.99

September - 2

8. Conferences, Committee Meetings, (Commission and Committee Travel):	
Joseph C. Paul	\$ 5.68
A.W.W.A.: Arrangements for Conference, Reading . .	14.65
Advisory Committee on Quality, Trenton, Sept. 24 .	23.15
Earle S. Warner.	30.25
9. Miscellaneous and Contingent:	
Peerless Towel Supply Company.	1.25
The Pennsylvania Company	19.00
Miscellaneous Office Petty Cash.	31.66
TOTAL, Incodel Accounts Current and Payable . . .	\$ 1470.75

October, 1942

INCODEL ACCOUNTS

CURRENT AND PAYABLE
(Except where noted)

Classified in Budget Form

I. Personal Services: (Due October 15 and October 31):

1. Commission Executive Secretary	\$ 350.00
2. Engineer	350.00
3. Assistant Engineer	175.00
4. Office Secretary	125.00
5. William A. Walker (Draftsman).	30.00
	<u>\$ 1,030.00</u>

II. Other Expenses:

1. Rent (Due October 1)	150.00
2. Equipment.	
3. Supplies:	
J. R. Howarth Paper Company	18.15
A. Pomerantz & Company.	47.75
W. T. Peck & Company.	26.40
A. B. Dick Company.	18.00
Renninger & Graves.	7.50
4. Printing:	
G. H. McCandless.	32.25
5. Postage and Express.	46.60
6. Telephone and Telegraph:	
Bell Telephone Company of Pennsylvania.	26.11
Western Union	3.54
Postal Telegraph Company.	2.40
7. Travel: staff and employees:	
David W. Robinson:	
October 2, Chester	1.35
October 6, NYC (Incode Meeting)	26.43
October 13, Harrisburg	13.20
October 24, Chester.65
October 26, Newark	6.10
October 29, Trenton.	<u>3.55</u>
	51.28
James H. Allen:	
October 2, Trenton	4.17
October 6, NYC (Incode Meeting)	8.10
October 8-9, A.W.W.A. Conference, Philadelphia.	8.35
October 16, Marcus Hook.	1.27
October 20, Trenton.	2.92
October 23, Atlantic Deeper Waterways Association.	<u>1.20</u>
	26.01

7. Travel (continued)	
Robert E. Kresge	8.02
8. Conferences; Committee Meetings (Commission and Committee Travel):	
October 6, 1942; Roosevelt Hotel, New York.	
Commission Travel, Luncheon, Meeting Expense with	
Board of Water Supply	131.88
9. Miscellaneous and Contingent:	
Peerless Towell Service Company.	1.25
A.W.W.A. Conference, Philadelphia: For Incodel	
Exhibit, Preparation, Drayage, Service Charges,	
etc.	36.70
Office Miscellaneous and Petty Cash	41.13
TOTAL, Incodel Accounts Current and Payable	\$1,704.97

November, 1942

INCODEL ACCOUNTS

CURRENT AND PAYABLE
(Except where noted)

Classified in Budget Form

I. Personal Services: (Due November 15 and November 30).

1. Commission Executive Secretary	\$ 350.00
2. Engineer	350.00
3. Assistant Engineer	175.00
4. Office Secretary	<u>125.00</u>
	1,000.00

II. Other Expenses:

1. Rent (Due November 1)	150.00
2. Equipment	
3. Supplies:	
J. R. Howarth Paper Company	12.20
W. T. Peck & Company	24.90
Renninger & Graves	2.40
A. B. Dick Company	1.20
4. Printing	
5. Postage and Express	39.60
6. Telephone and Telegraph:	
Bell Telephone Company of Pennsylvania	35.49
Western Union Telegraph Company93
7. Travel: staff and employees:	
David W. Robinson:	
November 5, Harrisburg	12.05
November 10, Trenton	3.60
November 10-11, Washington and Baltimore	26.41
November 12, Trenton	8.10
November 16, Ironworks Creek Dam	4.05
November 27, Chester	<u>.90</u>
	55.11
James H. Allen:	
October 24, New York City	7.80
October 28, Harrisburg	8.61
November 12, Trenton	5.02
November 16, Trenton	4.57
November 17, Trenton	6.42
November 20, New York City	<u>7.30</u>
	39.72

8. Conferences, Committee Meetings (Commission and Committee Travel):

New York City Board of Water Supply, Nov. 20	19.05
A.S.C.E.(Phila. Section) Dinner and Meeting, Nov. 10	6.20
Lawrence Williams (Incodel Legal Committee).	16.00

9. Miscellaneous and Contingent:

Peerless Towel Service Company	1.25
Office Miscellaneous and Petty Cash.	43.10

TOTAL, Incodel Accounts Current and Payable. . . . \$1,447.15

