

NO. 41, ORIGINAL

Supreme Court, U.S.

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IN THE

# Supreme Court of the United States

OCTOBER TERM, 1969

STATE OF OHIO, EX REL., PAUL W. BROWN, Attorney  
General of Ohio, State House Annex, Columbus, Ohio 43215

Plaintiff,

—vs.—

WYANDOTTE CHEMICALS CORPORATION, A corporation  
existing under the laws of Michigan, located at 1609 Biddle  
Avenue, Wyandotte, Michigan,

DOW CHEMICAL COMPANY OF CANADA, LIMITED, A cor-  
poration existing under the laws of the Dominion of Canada,  
located at Sarnia, Ontario,

and

THE DOW CHEMICAL COMPANY, A corporation existing  
under the laws of Delaware, located at Midland, Michigan,

Defendants.

## STATEMENT AND BRIEF OF WYANDOTTE CHEMICALS CORPORATION, ONE OF THE RESPONDENTS, IN OPPOSITION TO THE MOTION FOR LEAVE TO FILE COMPLAINT, WITH APPENDICES

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**WYANDOTTE CHEMICALS CORPORATION, A corporation  
existing under the laws of Michigan, located at 1609 Biddle  
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**DOW CHEMICAL COMPANY OF CANADA, LIMITED, A cor-  
poration existing under the laws of the Dominion of Canada,  
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and

**THE DOW CHEMICAL COMPANY, A corporation existing  
under the laws of Delaware, located at Midland, Michigan,**

**Defendants.**

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**STATEMENT AND BRIEF OF WYANDOTTE  
CHEMICALS CORPORATION, ONE OF THE  
RESPONDENTS, IN OPPOSITION TO THE  
MOTION FOR LEAVE TO FILE COMPLAINT,  
WITH APPENDICES**

**STATEMENT AND BRIEF**

This Statement and Brief is filed on behalf of the Defendant, Wyandotte Chemicals Corporation (hereinafter called "Wyandotte") in opposition to the Plaintiff's Motion for Leave to File Complaint. Plaintiff is hereinafter called "Ohio", and its Attorney General "Petitioner".

### GROUNDS ON WHICH JURISDICTION OF THIS COURT IS INVOKED

Ohio invokes this Court's jurisdiction under Article III, Section 2, Clause 2, of the Constitution of the United States; Title 28 U.S.C., §1251; *Georgia v. Tennessee Copper Company*, 206 U.S. 230 (1907); *New Jersey v. New York City*, 283 U.S. 473 (1931); and on a purported urgency for action by this Court. Reference is made by Ohio to Art. IV of the treaty between the United States and Great Britain dated January 11, 1909 and proclaimed May 13, 1910.

Art. III, Sec. 2 of the Constitution of the United States, and 28 U.S.C., §1251 would, absent other factors, permit this Court to assume jurisdiction herein.

### PURPOSE OF OHIO'S MOTION

The Complaint prays that alleged conduct of Wyandotte be declared a public nuisance and seeks the abatement thereof together with incidental relief.

Contemporaneous statements by the Petitioner indicate that this is an appropriate categorization of the relief sought and that the purpose exists to establish a precedent for further intimate involvement of this Court in affirmatively dealing with interstate pollution cases.<sup>(1)</sup>

The brief *amicus curiae* of the Attorney General of the State of Michigan suggests that this Court's action here would be of a "precedent setting nature", and that this Court, based on a "frank admission . . . (of) the neglect

1. Petitioner was quoted on May 15, 1970 in an article in The Cleveland Press, reproduced in its entirety as Appendix I, as follows:

"Brown explained that if the Supreme Court issued an injunction to stop polluting the streams, 'you know the company against whom the injunction was issued will stop, period. More important, it will open the door for similar suits, thus giving the people an edge in the battle against pollution'."

"He said that once the door is open, the court could involve itself with other polluters because 'other parties would file suit the same way Ohio has to stop the menace'."



of states . . .", should furnish judicial guidance applicable to "the vastness of the Great Lakes Basin and its attendant problems".

Such views support the conclusion that the purpose of the Motion is to constitute this Court a super-authority controlling pollution by exercise of its original jurisdiction.<sup>(2)</sup>

### QUESTION PRESENTED

The question presented by the Motion of Ohio for Leave to File its Complaint is limited solely to whether this Court should assume original jurisdiction in the overall context in which the question is presented.

### STATEMENT OF THE CASE

Since only two cases are cited by Ohio, one of which may have been within the original *and exclusive* jurisdiction of this Court, a resume of the facts (duly supported by the affidavit of Robert E. Dunn, the original having been submitted to this Court, reproduced in its entirety as Appendix II), is appropriate.

From 1938 to March 24, 1970, Wyandotte has operated its mercury cell chlorine-caustic soda plant at Wyandotte, Michigan, and discharged certain waste waters into the Detroit River, subject to frequent surveillance of its activities by the Michigan Water Resources Commission (and its predecessor, the Michigan Stream Control Com-

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<sup>2</sup>. Contrast may be made of the facilities of this Court with the position of the single State, Michigan, whose Water Resources Commission consists of one hundred ten (110) employees, of whom seventy (70) are assigned to pollution matters. Without endeavoring to analyze existing Federal staffing of the Department of the Interior (including the Federal Water Quality Administration, the Bureau of Commercial Fisheries, and other related groups), the proposed Environmental Protection Administration is reported to involve six thousand (6,000) employees and a preliminary budget of \$1,400,000,000. Air and Water News, Vol. 4, No. 28, McGraw Hill, July 13, 1970.

mission), the International Joint Commission and other commissions and agencies.

The Canadian government on March 23, 1970 banned the taking of fish from Lake St. Clair, geographically situated twenty miles upstream from Wyandotte's plant, after having found concentrations of "mercury" in certain fish at levels deemed unsafe by such government.

Upon advice of this action, Wyandotte conducted intensive studies of its own plant operation, and on April 3, 1970 obtained preliminary approval from the Michigan Water Resources Commission for a proposed treatment method, installed on April 10, 1970.

On April 16, 1970, Wyandotte closed the plant temporarily in response to a restraining order issued by the Circuit Court of Ingham County, Michigan. Such restraining order was dissolved as a result of a Stipulation signed and Consent Order entered respectively on April 22 and 23. The Consent Order is annexed hereto as Appendix III.

Recycling of waste waters into brine wells was approved by the Michigan Water Resources Commission and the plant reopened on April 26, 1970. Since that date, all waste waters from the mercury cell process have been recycled, and no mercury has been discharged into the Detroit River, as verified by tests by the Federal Water Quality Administration.<sup>(3)</sup>

The Governor of Ohio on April 12, 1970, issued an Executive Order banning taking of fish from Lake Erie, which order was substantially rescinded on April 22, 1970, except as to walleye pike.<sup>(4)</sup>

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<sup>3</sup>. Reported by Mr. Van Den Berg, Transcript, LEEC, p. 663; Appendix IV, p. 23a.

<sup>4</sup>. Executive Order, April 12, 1970, filed April 13, 1970; Executive Order, April 22, 1970, filed April 23, 1970.

On April 21, 1970, Secretary of the Interior Hickel ordered the convening of the Lake Erie Enforcement Conference, pursuant to the Federal Water Pollution Control Act as amended, and such conference began its deliberations on June 3, 1970. Ohio is a party to such conference.

The Motion For Leave to File Complaint was filed herein on April 28, 1970, and a copy was served on Wyandotte's registered agent in Cleveland, Ohio on April 29, 1970.

Testimony of expert witnesses at the hearing of the Subcommittee on Energy, Natural Resources, and the Environment of the Senate Commerce Committee, and at the hearing before the Department of Natural Resources of the State of Wisconsin, as well as before the Lake Erie Enforcement Conference, have suggested the need for substantial additional research to determine the source and role of numerous contributions of mercury to the environment as related to the concentration of mercury in fish, and have further suggested the requirement of substantial additional research in identifying the effect, if any, upon human beings, and the determination of appropriate tolerance levels and discharge limitations which might be established in the public interest.

#### **ARGUMENT**

#### **LEAVE TO FILE COMPLAINT HEREIN SHOULD BE DENIED.**

##### **I**

#### **NO AFFIRMATIVE RELIEF IS IN FACT INVOLVED.**

The Statement of the Case outlined above demonstrates that no mercury or mercury compounds were being discharged by Wyandotte on the date the State of Ohio filed its motion in this court. Wyandotte had consented to refrain from disposing of any waste products containing mercury prior to that time. No facts exist (or existed at the time of the filing of the motion by Ohio) upon which affirmative

relief could have been or can be granted.

The emergency alleged in the motion and brief of Ohio does not exist. Ohio permits the taking, selling and buying of fish from the waters of Lake Erie, with the exception of Walleye Pike, and has granted such permission since April 23, 1970, five days before the motion of Ohio was filed in this court.

No emergency situation exists which would justify invoking this Court's original jurisdiction. The relief prayed is essentially moot.

## II

### **FILING OF THE COMPLAINT WOULD CONFLICT WITH DECLARED NATIONAL AND INTERNATIONAL POLICY, AND IS CONTRARY TO DETAILED PROCEDURES WHICH HAVE BEEN ESTABLISHED FOR THE RESOLUTION OF THE PROBLEMS OF WATER POLLUTION.**

(A) *Filing of the Complaint would subvert the mandatory conference required by the Federal Water Pollution Control Act <sup>(5)</sup> and produce a flood of litigation in this Court.*

While neither Ohio nor Michigan has deemed reference to the Act or the proceedings thereunder to which they are parties to be of significance in this case, the Act must be considered.

Section 1 (a) (1) of the Act (33 U.S.C. Section 466 (a)) reads as follows:

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5. The Federal Water Pollution Control Act, June 30, 1948, C. 758, 62 Stat. 1155, as amended by: The Water Pollution Control Act Amendments of 1956, July 9, 1956, C. 518, 70 Stat. 498; Pub. L. 86-70, June 25, 1959, 73 Stat. 148; Pub. L. 86-624, July 12, 1960, 74 Stat. 204, 205; The Federal Water Pollution Control Act Amendments of 1961, July 20, 1961, Pub. L. 87-88, 75 Stat. 204; The Water Quality Act of 1965, Oct. 2, 1965, Pub. L. 89-234, 79 Stat. 903, The Clean Water Restoration Act of 1966, Nov. 3, 1966, Pub. L. 89-753, 80 Stat. 1246; and the Water Quality Improvement Act of 1970, P.L. 91-224, 84 Stat. 91, all as set forth in Title 33 U.S.C. §466 et seq.

“The purpose of this Act is to enhance the quality and value of our water resources and to establish a national policy for the prevention, control, and abatement of water pollution.”

Declaration of such national policy was described as a major provision of the Act in House Report No. 215. Public Works Committee, March 31, 1965. Section 1(b) of the Act (33 U.S.C. Section 466 (b)) refers to “. . . the exercise of jurisdiction over the waterways of the Nation and . . . the benefits resulting to the public health and welfare by the prevention and control of water pollution . . .”

The Act must be interpreted and applied in light of the broad sweep of the commerce power, pursuant to which it was enacted.

Ohio has suggested the applicability of Federal legislation to this case by alleging in its complaint that the actions of Wyandotte were in violation of “statutes of the United States”. In seeking to invoke the jurisdiction of this court, however, Ohio has proceeded in a manner inconsistent with the Act.

This legislation constitutes a comprehensive scheme established by Congress to combat all aspects of water pollution in the United States. Pollution of interstate waters is specifically covered in Section 10 (d) of the Act [33 U.S.C. §466g (d)] which sets out the four-stage procedure to be employed when pollution discharges in one state affect the health or welfare of people in another state. If such a situation exists or is alleged to exist it is mandatory that the Secretary of the Interior call a conference to investigate the problems and to make recommendations. At the conclusion of the conference the Secretary must allow the appropriate state water pollution control agency to take necessary remedial action. If remedial action is not taken the Secretary must call a public hearing before a

specially constituted hearing board to resolve the problem.

If this public hearing does not result in effective action the Secretary of the Interior is authorized to request the Attorney General to bring a court action in a United States District Court on behalf of the United States. Section 10 (h) of the Act [33 U.S.C. § 466g (h)] states:

“The Court shall receive in evidence in any such suit a transcript of the proceedings before the board and a copy of the board’s recommendations and shall receive such further evidence as the court in its discretion deems proper. The court, giving due consideration to the practicability and to the physical and economic feasibility of securing abatement of any pollution proved, shall have jurisdiction to enter such judgment, and orders enforcing such judgment, as the public interest and the equities of the case may require.”

Were there administrative failure (Federal and State) to achieve the results contemplated by the Act, cases such as this would come before a United States District Court (having the benefit of all prior consideration of the matter) and could ultimately come before this Court in the usual course of its exercise of appellate review.

It is reasonable to conclude that the Act’s scheme, already implemented by the Secretary in this instance, was adopted to conform to views expressed in *New York v. New Jersey*, 256 U.S. 296 (1921) at 313, where this Court said:

“We cannot withhold the suggestion, inspired by the consideration of this case, that the grave problem of sewage disposal presented by the large and growing populations living on the shores of New York Bay is one more likely to be wisely solved by co-operative study and by conference and mutual concession on the part of representatives of the states

so vitally interested in it than by proceedings in any court, however constituted."

Those views of this Court, undoubtedly the result of the thirteen years required for disposition of that case, were used as support for Senate Bill 649, pending in the 88th Congress, by Mr. Murray Stein (then, as now, the Assistant Commissioner for Enforcement, FWPCA).<sup>(6)</sup>

With particular reference to the problems of interstate pollution, the remarks of Mr. Stein point up the strong and effective position of the conference method in resolving precisely the problems here presented, of discharges from several states affecting interstate waters, and the equitable concepts involved.<sup>(7)</sup>

Mr. Stein has already declared in the pending Lake Erie Enforcement Conference:

"I don't think we can ask communities in Michigan to do something without taking reference to what they are doing in the others."<sup>(8)</sup>

The facts as developed at the Lake Erie Enforcement Conference, in which Ohio is a conferee, show that discharges of mercury were continuing from several Ohio sources,<sup>(9)</sup> in one case in the face of a cease and desist order from the Ohio Pollution Control Board.<sup>(10)</sup>

6. U.S. Congress, Senate Hearings, Committee on Public Works, Special Subcommittee on Air and Water Pollution, 88th Cong., 1st Sess., p. 47.

7. Ibid., pp. 58-59 The question of Senator Miller postulates precisely the situation here present. The answer of Mr. Stein is illuminating.

8. Typed Transcript of Proceedings, June 3-4, 1970, Fifth Session of the Conference in the Matter of Pollution of Lake Erie and its Tributaries, p. 679. Not yet printed. Available prior to publication, Ace-Federal Reporters, Inc., 415 Second Street N.E., Washington, D.C. 20002. Referred to hereinafter as Transcript, Lake Erie Enforcement Conference. Portions of such transcript are annexed as Appendix IV.

9. Ibid., p.p. 682-3 Discharges specifically identified were those of Diamond Shamrock, Painesville, Ohio; Cleveland Westerly and Southerly sewage treatment plants; Euclid sewage treatment plant.

10. Ibid., p. 682. The discharge involved was that of Detrex Chemical Company.

The "co-operative study . . . and mutual concession" visualized by this Court in *New York v. New Jersey, supra*, and the "moral suasion of the conference technique" will in fact be frustrated if a conferee may separately proceed in this Court without concern for its own delinquencies.

The foregoing is entirely consistent with the carefully structured concept of primary administrative jurisdiction, enunciated by this Court in *U.S. v. Western Pacific R. Company*, 352 U.S. 59 (1956), *Far East Conference v. U.S.*, 342 U.S. 570 (1952) and *Texas & Pacific Railway Co. v. Abilene Cotton Oil Co.* 204 U.S. 426 (1907). If further support were required for the proposition here advanced, including a weighing of the probable Congressional intent in providing the conference method, it would be found in that concept.

The filing of the Complaint in this action would subvert the carefully designed control scheme incorporated in the Act, result in a flood of similar litigation in this Court,<sup>(11)</sup> and replace the required action of the Secretary with the involvement of this Court. It might appropriately be noted that in disposing of the case of *New York v. New Jersey, supra*, this Court gave great weight to a stipulation developed pursuant to a conference.

Congressional compliance with this Court's invitation to deal with such matters by the conference method should not be rejected by permitting the filing of the Complaint.

(B) *Filing of the Complaint would discourage state action as mandated by the Federal Water Pollution Control Act.*

§1(b) of the Act (33 U.S.C. §466 (b)) provides in part as follows:

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<sup>11</sup>. Appendix I.



“In connection with the exercise of jurisdiction over the waterways of the Nation and in consequence of the benefits resulting to the public health and welfare by the prevention and control of water pollution, it is declared to be the policy of Congress to recognize, preserve, and protect the primary responsibilities and rights of the States in preventing and controlling water pollution . . .”

§1(c) of the Act (33 U.S.C. §466(c)) provides:

“Nothing in this Act shall be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States.”

The legislative history makes clear that the Congress had in mind such preservation of basic state responsibilities and jurisdiction, as a part of an overall combination.<sup>(12)</sup>

The tie between these expressions and the national policy was described thus by Mr. Yates:

“ . . . nothing is so local as a drop of water, or so national as what we do with it.”<sup>(13)</sup>

§10(b) of the Act (33 U.S.C. §466g(b)) provides:

“Consistent with the policy declaration of this Act, State and interstate action to abate pollution of interstate or navigable waters shall be encouraged and shall not, except as otherwise provided by or pursuant to court order under subsection (h) of this section, be displaced by Federal enforcement action.”

In the Environmental Quality Improvement Act of 1970 (Public Law 91-224, 84 STAT. 114) Congress reaffirmed the focus on a primary state responsibility in the resolu-

<sup>12</sup>. 111 Cong. Rec. 8678 (1965)

Mr. Reuss. — “In formulating these amendments concerned Congressmen have been searching for the combination of programs, responsibilities and jurisdictions that would best enable us to halt the growing pollution of our streams.”

<sup>13</sup>. 111 Cong. Rec. 8674 (1965)

tion of problems of water pollution. Section 202 provides:

“... ”

(b) (1) The Congress declares that there is a national policy for the environment which provides for the enhancement of environmental quality. This policy is evidenced by statutes heretofore enacted relating to the prevention, abatement and control of environmental pollution, water and land resources, transportation, and economic and regional development.

(2) The primary responsibility for implementing this policy rests with State and local governments.

(3) The Federal government encourages and supports implementation of this policy through appropriate regional organizations established under existing law...”

The enforcement mechanisms under Section 10 (c) or (d) of the Act [33 U.S.C. §466g(c) and (d)] require the making of recommendations by the Secretary to the State authorities. Under Section 10(f) (1) of the Act [33 U.S.C. §466g(g) (1)], findings are directed to be reported to “the State water pollution control agency . . . of the State or States where such discharge or discharges originate”. Only following failure of such state or states to act is Federal enforcement possible.

In respect of the jurisdiction of other States, Section 4 of the Act (33 USC §466b) was structured to permit “individual states having no jurisdiction over the waters that are beyond the State lines . . . (to) . . . create a regional compact.”<sup>(14)</sup>

Absent such regional or interstate compact, the “national policy” of the Act places on Michigan that primary responsibility emphasized in §1(b) of the Act. Its Water

<sup>14</sup>. Mr. Lausche, 111 Cong. Rec. 1543 (1965)

Resources Commission is obviously the "appropriate state water pollution control agency" referred to in Section 10 (e) of the Act (33 U.S.C. §466g(e)). It is its action which is to be encouraged.

While neither Michigan nor Ohio deems reference to its own pollution control agencies important, although it has already been held in Michigan that court action must follow rather than precede agency action,<sup>(15)</sup> the functioning of such agencies is important to the implementation of the Act.

Availability of concurrent action by this Court would in fact *discourage* state action, since this Court would simultaneously be endeavoring to resolve the same issue, a fact which would be more apt to produce temerity than alacrity, and to induce that continued "neglect of states" which is here relied on by Michigan in support of the Motion.

(C) *Filing of the Complaint would contravene the procedures of the Boundary Waters Treaty of 1909.*

Ohio relies on the treaty between Great Britain and the United States of January 11, 1909 in invoking the jurisdiction of the Court, and alleges that citizens of the United States and Canada are polluting the boundary waters between these countries in violation of the treaty.

Whether the treaty has relevance to Wyandotte is not material, since by seeking to invoke the jurisdiction of this Court, Ohio ignores the declared policy and those implementing procedures provided in the treaty, which were established for the express purpose of solving disputes

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<sup>15</sup> *White Lake Improvement Association v. City of Whitehill*, 22 Mich. App. 262 (1970). Absent the stipulation entered into in the case of *Kelley v. Wyandotte Chemicals Corporation* (Appendix III), application of the *White Lake* case would probably have required dismissal of that action filed by the Attorney General.

regarding complex issues of international water pollution.

A purpose of the treaty is set forth as follows:

“ . . . to prevent disputes regarding the use of boundary waters, . . . and to make provision for the adjustment and settlement of all such questions as may hereafter arise . . . ”

Disputes pertaining to alleged pollution of boundary waters were specifically covered by this treaty in Art. IV, as follows:

“ . . . It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other. ”

The International Joint Commission (hereinafter referred to as the I.J.C.) was created to resolve such boundary water disputes (Article VII).

Article IX of the treaty specifies procedures for settling “questions or matters of difference” between the High Contracting Parties.

Pursuant to Article IX of the treaty the I.J.C. has dealt specifically with international water pollution on several occasions prior to the filing of this motion. Among the boundary waters which were the focus of I.J.C. pollution proceedings were Lake St. Clair, the Detroit River, and Lake Erie, the same waters which are involved in the case at bar. (Dockets 4, 53 and 55 of the I.J.C.) As a result of the I.J.C.’s proceedings in Dockets 53 and 55, both governments requested this body to establish a technical board of advisors to supervise and control pollution of these specific waters. This board of experts is still in existence and makes semi-annual reports on pollution of these waters to the I.J.C., which is the proper forum to resolve international aspects of alleged pollution of the boundary waters between Canada and the United States.

## III

**THE FACTUAL AND LEGAL SITUATION DIFFERS  
FROM THE CASES RELIED ON BY PLAINTIFF.**

(A) *New Jersey v. New York City*, *supra*. relied on by Ohio, would appear to have been a case within the original and exclusive jurisdiction of this Court, and thus to have presented a problem having a vastly different legal focus. Even if this were not so, however, such case involves the application of factors clearly enunciated by this Court in *Georgia v. Tennessee Copper Company*, analyzed below.

As cases involving original and exclusive jurisdiction, *Missouri v. Illinois*, 180 U.S. 208 (1901) and *North Dakota v. Minnesota*, 263 U.S. 265 (1923) (cited by Michigan) are not decisive of the question here presented, since this case does not involve a suit between two sovereign States.

(B) The case differs from *Georgia v. Tennessee Copper Company*, *supra*., not only in that this case cannot be tried on affidavits, but also in that:

(1) *No allegation is made of any effort to obtain relief by action of the State of Michigan.*

In *Tennessee Copper Company*, plaintiff alleged  
“a vain application to the State of Tennessee  
for relief,” 206 U.S. 230, 236.

No such allegation is, or could be, made here, as the Statement of the Case and the documents in Appendix III amply document.

(2) *Ohio has numerous alternatives.*

In *Tennessee Copper Company*, this Court noted that “the alternative to force is a suit in this Court”, at 206 U.S. 237, citing *Missouri v. Illinois*, 180 U.S. 208, 241. The “alternative” referred to is obviously the obtaining of the relief prayed.

Methods of obtaining such relief, as to Wyandotte, include:

(i) Actions by the State of Michigan, which encompass:

(a) Action of the Michigan Water Resources Commission already taken;

Such Commission has primary administrative jurisdiction of water pollution matters in the State of Michigan,<sup>(16)</sup> and is that "State water pollution control agency . . . of the State . . . where such discharge . . . originates", as referred to in Section 10(f) of the Federal Water Pollution Control Act, as amended, 33 U.S.C. Section 466g (f), and the "appropriate State water pollution control agency" referred to in Section 10 (e) of the Act.

(b) Action of Michigan courts, already taken.

(ii) The Lake Erie Enforcement Conference.

Such Conference was convened by order of the Secretary of the Interior on April 21, 1970, and its deliberations commenced on June 3-4, 1970 in the City of Detroit. Ohio is a conferee. The Conference is specifically considering questions relating to the subject matter of this litigation,<sup>(17)</sup> as well as broader questions.

(iii) The International Joint Commission.

As set forth in II (C) above, the Treaty specifies the methods of invoking the action of the international Joint Commission.

(iv) Other Courts

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<sup>16</sup>. *White Lake Improvement Association v. City of Whitehall*, op.cit.

<sup>17</sup>. See the portions of the report of the Bureau of Commercial Fisheries, Transcript, LEEC, pp. 250-258; Appendix IV, Part A pp. 10a, 11a.

This Respondent does business in the State of Ohio, and has a duly appointed Registered Agent in such State. Indeed, the presently pending Motion was served on such agent on April 29, 1970.

It is difficult to imagine a more complete contrast to the situation presented in *Georgia v. Tennessee Copper Company, supra*. If, as suggested by Michigan, the lack of alternatives is "Central to this Court's cognizance of claims under original jurisdiction", it is evident that the test is not met, the relief prayed having already been obtained.

(3) *No risk of great damage exists.*

In *Tennessee Copper Company*, this Court varied its procedures because "there was ground to fear that great and irreparable damage might be done",<sup>(18)</sup> thus suggesting that the exercise of jurisdiction might have been partially predicted thereon.

In the Lake Erie Enforcement Conference, the Federal Water Quality Administration has reported that this defendant is not discharging mercury from its plant.

All action which this Court might order of an affirmative nature was either already taken prior to filing of the Motion or is under careful consideration by such Conference.

### CONCLUSION

It is, therefore, respectfully submitted that this Court should deny the motion of the Attorney General for the State of Ohio for leave to file the complaint.

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<sup>18</sup>. 206 U.S. 230, at 236.

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OCTOBER TERM, 1969

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STATE OF OHIO, EX REL., PAUL W. BROWN, Attorney  
General of Ohio, State House Annex, Columbus, Ohio 43215  
Plaintiff,

—vs.—

WYANDOTTE CHEMICALS CORPORATION, A corporation  
existing under the laws of Michigan, located at 1609 Biddle  
Avenue, Wyandotte, Michigan,

DOW CHEMICAL COMPANY OF CANADA, LIMITED, A cor-  
poration existing under the laws of the Dominion of Canada,  
located at Sarnia, Ontario,

and

THE DOW CHEMICAL COMPANY, A corporation existing  
under the laws of Delaware, located at Midland, Michigan,  
Defendants.

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## APPENDICES



APPENDIX I

The Cleveland Press

D. 393,191

May 15, 1970

*Press Ohio Bureau*

COLUMBUS — Attorney General Paul W. Brown campaigned for the Republican gubernatorial nomination against crime but particularly against pollution and believes the super weapon to be used in the battle is the U.S. Supreme Court.

Brown said that is why he filed his anti-pollution case against two firms doing business at three locations on the Great Lakes directly with the nation's highest court.

Brown observed the court has handled several pollution matters before. However, it has been many years since an anti-pollution case has been filed with the Supreme Court.

The attorney general's \$8 million suit and injunctive action names Dow Chemical Co. of Canada for its plant at Sarnia, Ontario; the Dow Chemical Co. at Midland, Mich. and the Wyandotte Chemical Corp. at Wyandotte, Mich.

All three plants were accused by Ohio, through the attorney general, of dumping pollutants, particularly mercury, into Lake Erie, thus endangering food, water and recreational resources of the people of the state.

According to Brown, if the court accepts jurisdiction, the battle against pollution will be on in earnest. The time for talk will be over.

Brown explained that if the Supreme Court issued an injunction to stop polluting the streams, "you know the company against whom the injunction was issued will stop, period. More important, it will open the door for similar suits, thus giving the people an edge in the battle against pollution."

The attorney general said the suit against the companies “attacks the problem of pollution of the Great Lakes representing Canada, all dealing with pollution. (*sic.*)

In 1907, the State of Georgia invoked the original jurisdiction of the Supreme Court in an action against a Tennessee firm which Georgia accused of polluting the air with noxious fumes.

Georgia won that test. Then, in 1931, New Jersey sued New York to prevent New York from dumping garbage in the ocean which was washing up on the Jersey shore.

The court accepted jurisdiction and appointed a master to hear the complaint and make recommendations.

According to Brown, both of those cases are the precedents which will allow the high court to accept jurisdiction in this suit.

He said that once the door is open, the court could involve itself with other pollutants and polluters because “other parties would file suit the same way Ohio has to stop the menace.”

The attorney general is pinning his hope that the high court accepts jurisdiction on two cases and a treaty between the United States and Great Britain, directly. Why can't the court be preoccupied with the rights of the majority and involve itself in clean water and clean air?"

## APPENDIX II

## AFFIDAVIT

ROBERT E. DUNN, being duly sworn and on oath, deposes and says as follows:

I am the Secretary and legal director of Wyandotte Chemicals Corporation, a Michigan corporation, (hereinafter called "Wyandotte"), and am familiar with the origin and circumstances of matters relating to the captioned litigation.

The chlorine-caustic soda plant of Wyandotte situated at Wyandotte, Michigan,, in the South Works, employing the mercury cell process for the production of chlorine and caustic soda, was operated on essentially the same principles from 1938 through the early part of 1970, insofar as the discharge of waste waters from the mercury cell chlorine caustic soda plant is concerned. During such period, the South Works was subject to periodic investigation and study by the Michigan Stream Control Commission, its successor the Michigan Water Resources Commission, the International Joint Commission, and other public agencies and bodies. Content of the discharges from the South Works was in fact governed by stipulation between Wyandotte and the Michigan Water Resources Commission, executed in 1966, in which no mention was made of the discharge of mercury.

I was personally advised of public interest and concern in levels of mercury concentrations in fish about March 24, 1970, through newspaper articles relating to the banning of fishing by Canada in Lake St. Clair. On information and belief, other personnel of the company were advised on such

date of an interest on the part of the Michigan Water Resources Commission in the operations of the South Works, although the South Works is situated in excess of twenty miles downstream from Lake St. Clair.

Wyandotte immediately began studies and surveys relating to the operation of its mercury cell processes. Alternate operating systems were tentatively approved on the basis of such surveys on April 1, funded on April 2, and reported to the Michigan Water Resources Commission as to operation of the Wyandotte, Michigan plant on April 3, 1970, on which date such tentative proposals were approved.

Proposals so approved were implemented and placed in operation on April 10, 1970, and the plant was operated in accordance with such revised operating techniques until April 16, 1970, on which date the plant was closed by reason of the issuance of an ex-parte restraining order in the matter of Kelly, Attorney General v. Wyandotte Chemicals Corporation, filed in the Circuit Court for Ingham County, Michigan.

A stipulation was executed on April 22, 1970 between the Company and the Attorney General of the State of Michigan, pursuant to which a consent Order was entered in the above entitled litigation on April 23, 1970. Necessary approvals of the Michigan Water Resources Commission were obtained, and the plant commenced operation on April 26, 1970, utilizing a recycling system pursuant to which all waste waters from the mercury cell process were first treated and then recycled into brine wells.

The recycling of waste waters from the mercury cell pro-

cess has continued to this date, and remains a requirement of the consent Order referred to above.

In my capacity as Secretary and legal director of the Company, I have attended hearings of the Sub-Committee on Energy, Natural Resources and the Environment of the Senate Commerce Committee, held May 8, 1970, in Mt. Clemens, Michigan, the Honorable Philip A. Hart, presiding, and hearings before the Department of Natural Resources of the State of Wisconsin, on May 15, 1970 (Wyandotte having a similar plant in Wisconsin). Limited testimony was offered at such hearings suggesting that miniscule concentrations of mercury present in waters or bottom muds might, through processes not fully known, become concentrated in certain species of fish. Testimony was offered by the Food & Drug Administration, the Federal Water Quality Administration, the Michigan Water Resources Commission, and other persons at the hearing of the Senate Sub-Committee, and testimony was offered by representatives of the Department of Public Health, and a representative of the Canadian Fishery Research Board at the hearings for the Department of Natural Resources.

It is a fair summary of the testimony so offered that the resolution of questions relating to discharge of mercury in the environment involves a multitude of sources of mercury in different forms, whose overall contribution to the concentration of mercury in fish is currently unknown; that the precise application of Swedish research relating to such processes may or may not have application to experiences in American rivers and lakes; that the determination of the process of such concentration in American rivers and lakes and possible effect on human beings will require further research and study, and the setting of appropriate

tolerance limits based upon such additional research and study.

Further deponent sayeth not.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd day of July, 1970.

/s/ ROBERT E. DUNN

STATE OF MICHIGAN

COUNTY OF WAYNE—ss.

Subscribed and sworn to before me this 23rd day of July, 1970.

IRENE E. POUPORE,

Notary Public, Wayne County, Michigan

My Commission Expires March 17, 1974.

APPENDIX III

STATE OF MICHIGAN  
IN THE CIRCUIT COURT FOR THE COUNTY  
OF INGHAM

FRANK J. KELLEY, Attorney General for the  
State of Michigan, for and on behalf of  
the People of the State of Michigan and  
its agencies,

Plaintiffs,

—vs.—

No. 11569-C

WYANDOTTE CHEMICALS CORPORATION,  
a Michigan Corporation,  
Defendant.

ORDER

At a session of said Court held in the Court House in  
the City of Lansing, County of Ingham, on this 23rd day of  
April, 1970.

PRESENT: HONORABLE SAM STREET HUGHES,  
Circuit Judge

Upon reading the Stipulation providing for the entry  
of a Consent Order heretofore entered into between the  
Plaintiff Frank J. Kelley, Attorney General for the State of  
Michigan, for and on behalf of the People of the State of  
Michigan and its agencies and the Defendant Wyandotte  
Chemicals Corporation, and the Court being fully informed  
in the premises. IT IS HEREBY ORDERED AND  
DIRECTED that:

- 1) The temporary restraining order heretofore entered  
in this cause on April 16, 1970 be and is hereby dissolved.
- 2) The defendant Wyandotte Chemicals Corporation  
shall not start up production utilizing the mercury cell  
process until such time as the Chief Engineer of the Michi-

gan Water Resources Commission has inspected and approved the system to recycle the process waste waters containing mercury that may originate from the production of products utilizing the mercury cell process.

3) Such approved recycling facilities as stated above in paragraph two shall include chemical pretreatment of waste waters so that the material that is recycled to the brine formation shall have a mercury content that is reduced to the greatest extent possible as judged by the Chief Engineer of the Michigan Water Resources Commission.

4) On or before May 1, 1971, the defendant shall, as a part of its operations, have installed, in accordance with plans and specifications approved by the Chief Engineer of the Michigan Water Resources Commission, above ground recycling facilities that will enable the Company to retain all wastes containing mercury.

5) That the aforesaid above ground recycling facilities shall be so operated so as to prevent mercury losses to the Detroit River and other waters of the state.

6) Any determination by the Chief Engineer of the Michigan Water Resources Commission, as provided in paragraph two, three, and four above, under this order shall be subject to review by the Michigan Water Resources Commission upon petition therefor filed by the defendant within 30 days of such determination.

7) The Court shall retain continuing jurisdiction of this cause for the purpose of making such further orders and determinations as shall be presented to it by further petition of either party hereto after final disposition in accord with the foregoing by the Michigan Water Resources Commission.

SAM STREET HUGHES,

A TRUE COPY

Circuit Judge

S. Ross Hilliard

Ingham County Clerk



APPENDIX IV  
EXTRACTS, TRANSCRIPT OF LAKE ERIE  
ENFORCEMENT CONFERENCE

(A) SUMMARY OF BUREAU OF COMMERCIAL  
FISHERIES STATEMENT, pp. 250-251.

Based on analysis of all available data, the following conclusions are drawn concerning the past, present and future status of the commercial and sport fishery and related aquatic resources of Lake Erie.

1. Lake Erie has been the most fertile and productive of all the Great Lakes. A total of 19 species have been significant in the commercial landings at one time or another. Annual combined U. S. and Canadian production has fluctuated little in the past 50 years, averaging approximately 50 million pounds.

2. The value of the catch is declining, however, which reflects the changing conditions of the fish stocks from high-value to low-value species. High-value species like the sturgeon, northern pike, whitefish, cisco, blue pike, and sauger, have virtually disappeared from the catch. Walleye, yellow perch, white bass, and channel catfish constitute the major remaining species of higher and medium value. These species are declining and show signs of difficulty in perpetuating themselves. Stocks of such less valuable species as freshwater drum, carp, suckers, and goldfish are, with few exceptions, greatly underexploited.

3. Prior to 1954, U. S. fishermen landed more pounds of fish than Canadian fishermen. Now, however, the U. S. catch is less than 20 percent of the total catch from Lake Erie.

4. Three States bordering Lake Erie have been introducing yearling coho salmon since 1968. Growth and survival have been relatively good. However, very little open-

lake research has been conducted and little is known about the impact of coho salmon on other valuable fishery resources such as yellow perch and smelt.

5. By most criteria accepted by limnologists, Lake Erie is classified as a eutrophic lake with changing water quality in both inshore and open waters. Industrial, municipal, and agricultural pollution and enrichment of Lake Erie has caused: (a) massive nuisance and toxic algal blooms of *Microcystic* and *Aphanizomenon*, (b) destruction of the valuable mayfly benthos in the western and central basins, (c) a 20-fold increase in plankton, the diet staple for several nuisance and low-value fishes that have undergone population explosions in the last 15 years, (d) increased levels of such pesticides as DDT and Dieldrin in fish flesh, (e) dangerously high levels of mercury in many fishes, (f) the destruction of spawning areas of some of our most valuable fishes, and (g) disappearance of oxygen from the bottom waters of the central basin during the summer.

6. The concentration of dissolved solids is still well below levels directly lethal to fish and food organisms even though solids have increased by 50 ppm since 1920. However, the continued accelerated rate of increase is cause for future concern.

7. Warm water temperatures and high nutrient levels have led to tremendous algae blooms. This organic production has created in turn a large BOD during decomposition. Furthermore, reduced materials have accumulated in the sediments over the years. The combined BOD and chemical oxygen demand from these two phenomena have caused widespread oxygen depletion in the bottom waters of the western and central basins during periods of summer thermal stratification. The consequence of this has been widespread destruction of bottom organisms so important

in the diet of many Lake Erie fishes. Any increase in nutrient levels or average water temperatures will undoubtedly worsen this situation.

8. Pesticides, heavy metals such as mercury, phenols, cyanides, acids and exotic inorganic and organic chemicals are among the many outright pollutants discharged into Lake Erie. Pesticide levels (DDT and Dieldrin) are moderately low in Lake Erie fishes and all fall safely under the 5.0 ppm level set by the FDA. Mercury levels are, on the other hand, dangerously high. Values in some walleyes and white bass especially have exceeded the action level of 0.5 ppm set by the FDA.

9. Observations on walleye reefs during the 1969 spawning season suggest that the smothering effect of sedimentation on fish eggs and other bottom associated organisms may be detrimental and a major factor in the decline of some of our valuable fish stocks. Obviously, increasing siltation is a serious problem that needs full attention by the appropriate agencies now.

10. The historical record and current status of all the valuable sport and commercial fishes in Lake Erie are presented. The Bureau's program of fishery-limnology research on the fishery and aquatic resources of Lake Erie is described with special emphasis on the continuing effects of environmental degradation on the fishery and related aquatic resources.

11. Practically and legally speaking, halting degradation of the water quality of Lake Erie will require the establishment of sound and workable water quality standards, including standards and criteria for fish and aquatic life. This is an area where acceleration of research is needed. Interim standards will probably have to be set before the results of such research become available.

12. Because of their inherent sensitivity to subtle, long-range environmental changes, fish and aquatic organisms make excellent indicators of such changes. This has not been recognized sufficiently in the past. As more expensive and expansive pollution abatement programs are initiated, more aquatic research on Lake Erie will be needed to measure the effects of such abatement programs.

(B) ADDENDUM FOR BUREAU OF COMMERCIAL  
FISHERIES STATEMENT AT JUNE 3, 1970,  
LAKE ERIE ENFORCEMENT CONFERENCE AT  
DETROIT, MICHIGAN (pp. 252-8)

MERCURY IN FISH<sup>1</sup>

by

Harry L. Seagran

Laboratory Director

BCF Technological Laboratory

Ann Arbor, Michigan

*Current Situation*

Late in 1969, following significant warnings of insidious mercury pollution of the central provinces, studies were quietly initiated by Canadian environmentalists to define the situation. Shortly thereafter, several commercial catches of fish (walleye, northern pike, bass, and jackfish) taken from Lake Winnipeg, Cedar Lake, Saskatchewan River, and Red River in the Province of Manitoba, Canada, were detained by the Canadian Federal Department of Fisheries and Forestry, because they contained mercury residues deemed unsafe for human consumption. Concentrations of mercury in the fish ranged from 5 to 10 parts

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<sup>1</sup>Taken from the paper "Mercury in Fish," by Harry L. Seagran, LIMNOS, The Magazine of the Great Lakes Foundation, Vol. 3, No. 2, Summer, 1970.

per million (ppm). As an immediate result, more than 700,000 pounds of fish were confiscated and destroyed. Further, all fish from the Saskatchewan River system of Canada henceforth were to be held under detention and tested for mercury before being exported. Mercury residues less than 0.5 ppm (wet weight) were required to clear the emergency embargo. Somewhat later, on April 21, 1970, the Provincial Government announced the general closure of these waters to commercial fishing and also warned anglers of the danger of eating fish taken from these sources, because of their relatively high degree of mercury contamination.

As a result of concurrent testing by Ontario officials, the Canadian government embargoed all commercial fish taken from Lake St. Clair effective March 23, and at the same time cautioned the public against eating fish taken from this lake. Ever widening ripples spread from this first public announcement of the mercury contamination problem. Probably the most staggering revelation at this time, however, was the depth of information that had been developed in Canada on this matter over the last 18-month period, with apparently no awareness in this country as to the seriousness of the situation until mid-March 1970, when the matter was made public. A total ban on taking fish for any purpose from Lake St. Clair and the St. Clair, Clay, Wabigoon, and Detroit Rivers was subsequently announced by Canadian authorities on April 6. These actions were taken after Canadian officials found levels of mercury in walleye, pike, and other species taken from Lake St. Clair considerably in excess of the 0.5 ppm action level set by the Canadian Food and Drug Directorate. Typical of preliminary data (wet weight basis of market form) that resulted in the Canadian closure of the Lake St. Clair commercial

fishery were, for walleye, 1.3 - 1.9 ppm; sucker, 0.8 - 2.0 ppm Hg. Less predacious species and non-bottom feeders showed slightly lower values, according to Canadian spokesmen. Some values as high as 5 ppm in walleye muscle from Lake St. Clair were reported, however.

Following further testing, a similar embargo on walleye and yellow perch from Lake Erie was announced by the Canadian government April 1. Preliminary Canadian mercury data on walleye muscle from western Lake Erie was in the range 0.50 - 2.0 ppm; perch ranged downward from slightly less than 0.5 ppm; smelt appeared well below 0.5 ppm (0.05 - 0.20 ppm). Early in May, the Canadian walleye and white bass fisheries were closed in Lake Erie, as well as walleye in southern Lake Huron, because of the consistent high degree of contamination shown by these species.

United States and Great Lakes states public health officials immediately began investigating the matter from the standpoint of a possible public health threat in this country. In the absence of useful data on the mercury content of commercial—and sport-caught fish in this general area, they initially took a cautious, wait and see attitude. As data became available on fish taken from U.S. waters of the Great Lakes, however, Ohio, Michigan, and New York began instituting varying degrees of fishing bans. Lake St. Clair and connecting waterways have been closed to all types of fishing, with general closures on walleye in western Lake Erie. Embargoes on practically all Lake Erie food fish also are in effect; commercial catches of walleye, yellow perch, and white bass are being rigorously checked before release to the market. Current FDA and state action levels in the U.S. also are at 0.5 ppm, although FDA agency officials have expressed their concern that this

level may be undesirably high to adequately protect human health.

There are no official tolerances in the United States or Canada for mercury residues in any food products. The World Health Organization has not established a tolerance for mercury residues in fish, although it has set a recommended general tolerance for mercury in foods at 0.05 ppm. Sweden has set a tolerance of 1 ppm in fish. The U.S. and Canadian Food and Drug Directorates, on the other hand, have established the interim administrative guideline (action level) at 0.5 ppm for this food commodity. This figure should be regarded as interim, however, pending additional toxicological and survey studies in progress.

Fish present a particular problem, because of a relatively high natural background level of mercury and the role of this commodity in the human diet and its value to the recreational sector. Since early April 1970, several hundred fish samples from the Lake Erie-St. Clair area have been examined by several state and federal agencies. Over one-half of all samples examined thus far from Lake St. Clair exceed 0.5 ppm; about one-fourth of those taken from Lake Erie are in excess of this value. Relatively few values less than 0.2 ppm have thus far been obtained for fish of the highly valuable Erie - St. Clair fishery. A significant lowering the current action level could therefore have far-reaching impact on the recreational and commercial fisheries of this area.

#### *Sources of Contamination*

Canadian authorities have now revealed the history of their contamination problem. As in the earlier recognized Swedish situation, it was largely attributed to a number of chlor-alkali plants using a mobile mercury electrode, losing the metal to the environment as a contaminant of the dis-

charged, exhausted electrolytic brines. It is estimated that the chlor-alkali industry loses approximately 0.45 pounds of mercury to the environment per ton of chlorine produced. Based simply on chlorine tonnage figures, the loss of mercury may therefore be as much as 1.2 million pounds per year.

Not overlooked as sources of contamination though are probable contributions from other users of mercury in the Great Lakes area; these are for slimicides in pulp and paper mills, in plastics manufacture (vinyl chloride), agricultural uses (seed dressing and insecticides), antifouling paints (fungicides), and others. During the last decade the annual consumption of mercury has risen from an average of 4 million to an estimated 6 million pounds per year. The major users of mercury in this country are manufacturers of electrical apparatus (25%) and the chlor-alkali industry (20%). Those uses which present the greater potential for pollution of the environment are in chlorine and caustic soda production and agricultural and related uses (as mildew proofing compounds and pesticides); this latter use comprises about 1 million pounds annually.

In the St. Clair area, specific losses of up to 200 pounds of mercury wastes per day have been discharged by the chlor-alkali industry at Sarnia, Ontario, according to Canadian authorities. Several other plants in this general area, both in Canada and the U.S., were also found to be discharging brine wastes containing mercury, although at a lesser rate. During the 20-30 years these plants have been operating, considerable mercury has obviously been discharged to the environment. Recent work by U.S. investigators has shown significant mercury concentrations in bottom sediments in areas below the outfalls of discharg-



ing plants. Values up to 430 ppm have been obtained by investigators working on U.S. waters. According to Ontario spokesmen, levels up to 1800 ppm of mercury were detected in muds immediately below the outfall of one Sarnia plant. Gradients are evident, concentrations dropping to background levels (generally ranging from less than the detectable limit to approximately 2 ppm) within a few miles of the source of contamination. Mercury levels in water generally have been below detectable levels (10 ppb), based on current work in the St. Clair-Erie western basin system.

While various investigations are far from complete at the present time, the following pattern is evident.

1. Where there are chlor-alkali plants, there is good evidence of mercury escapement to the environment. The magnitude of the loss can be minimized by control procedures in the plant.
2. Sources of mercury pollution are being rapidly identified by U.S., state, and Canadian authorities and rigid control procedures (with monitoring) are being made mandatory. No known mercury losses to the environment are being tolerated.
3. While the ecology in a mercury polluted area is undoubtedly affected, the degree of contamination of fish is related to the species, the size, the age, and where the fish is caught. Feeding habits appear to be involved.

#### *Economic Assessment*

Any assessment of the economic cost of the current mercury pollution situation in the Great Lakes must be both tentative and non-quantitative in nature. The actual level of physical risk is not yet determined; political and regulatory reaction has been variable from state to state

and is subject to continuing revision. The permanence of the impact of this general publicity on the consuming public is also difficult to determine at this point-in-time.

The problem developed just prior to the opening of the commercial fishing season and caught the processing industry with reduced inventories of lake perch and walleye. A very early and informal survey of the industry reflects that total fish sales from all sources in the Midwest have been reduced about 15 percent since the mercury ban was announced. Although Great Lakes species are re-entering commercial channels, it is anticipated that Midwest sales of lake perch could be reduced by 50 percent over the course of the 1970 season.

The cost to society is very difficult to define and calculate. The following kinds of cost are, in fact, being incurred and their longer term extent can only be guessed.

1. Cost of added enforcement, regulation, inspection, and control.
2. Promotional expense by processors, wholesalers, and retailers disassociating ocean species from Great Lakes species.
3. Cost of holding inventories pending decision.
4. Cost of subsidies (currently under consideration by the state governments, for example) to compensate businessmen hurt from either the commercial or sport fish bans.
5. Loss of revenues to commercial fishermen. Although these businessmen are relatively few in number, the loss to them as individuals is absolute and catastrophic.
6. Loss to processors and distributors of both Great Lakes and marine fish due to reduced volume. This is particularly significant to processors and distributors

in the Midwest, since the ban coincides with high-volume season.

7. Loss to producers of ocean fish products to the extent that the total demand for all fish products is reduced by adverse publicity to any single product.
8. Loss of revenues occurring from the sports fishery, as well as lesser sportsman satisfaction.
9. Loss to the consuming public in that their range of choice is effectively reduced by fear of a whole class of food products.

In all these cases, the loss to each level and sector of the economy has "multiplier" impact on many other sectors. It is far too early to anticipate what the net, longer-term economic and social consequence of the mercury pollution problem will be.

#### *Current BCF Work*

One of the actions taken by the Bureau of Commercial Fisheries (BCF), U.S.D.I., following the release of information suggesting the relative seriousness of this contamination problem, was to initiate, on a cooperative basis with other agencies, immediate and preliminary monitoring of fish taken from the Great Lakes system for their mercury content. This initial action was based largely on an evaluation of Canadian information concerning concentrations of mercury in fish caught in international waters, as well as on information gained from the literature and public health related agencies. Initial BCF monitoring had as its objectives an assessment of possible direct harm to commercial and sport fishes of the affected areas, as well as of the indirect adverse impact that would undoubtedly result to the commercial fisheries from this contamination problem and responses available to the commercial industry. The details of this work and resulting data are being made available on

an immediate basis to other agencies of the public sector, recognizing the criteria of evaluation will perhaps differ.

To date, the Ann Arbor, Michigan, Technological Laboratory has been coordinating the BCF collection of appropriate fish samples from the Great Lakes for mercury determinations. Extensive samples have been collected and analyzed from Lake St. Clair and the western basin of Lake Erie. Additional samples are currently being examined from the central and eastern basins of Lake Erie, from southern Lake Huron and Saginaw Bay, and from the southeast sector and Green Bay areas of Lake Michigan. Sampling is also in progress for northern Lake Michigan, and Lakes Superior and Ontario. Sampling is being performed generally by field staff of the BCF Great Lakes Fishery Laboratory, Ann Arbor, with assistance by field staff of the Michigan Department of Natural Resources.

To the extent possible, approximately 15 individual fish are taken randomly (by trained biologists) by on-site sampling from commercial fishing gear in the immediate area of fishing. Data collected include species, date, location, depth, method of harvest, length and weight (of individual fish), and a scale sample (for subsequent age data). All fish of one lot are separated into "marketable product" (headed, dressed, scaled, tail-off) and "offal" (processing waste). Edible and offal composites (after pooling) are weighed for yield data, ground, and sub-sampled for analysis.

Thus far, samples are being analyzed for total mercury content using one or more of several analytical sources. Most of the data have been obtained on samples shipped to Wisconsin Alumni Research Foundation (WARF), Madison, Wisconsin. WARF employs a dithizone extraction of an acid digested sample coupled with atomic absorption

using a boat technique. Some samples are also being examined on a cross-check basis by the Phoenix Memorial Laboratory, The University of Michigan, Ann Arbor, employing a neutron activation method. Plans are being laid to develop an in-house testing capacity at the earliest possible time.

*Recommendations*

Corrective actions and future research by industry and by state and federal agencies on mercury contamination could take the following steps:

1. The first step, which has already been taken on an emergency basis in the Great Lakes area, is to identify all sources of mercury pollution to the environment and to stop these losses. Extreme measures may be necessary in some cases.
2. A next, very important step is to determine the fate of mercury already in the environment. If, as Swedish studies have indicated, elemental and inorganic mercury discharged as wastes from plant outfalls can serve as precursors to methyl-mercury through biological processes in the environment, then the complex problem of removal may need to be considered. Dredging may be a possibility, but if this is done, the mercury must be deposited in a suitable location to permanently avoid re-entry. Disturbance of the bottom ecology with resulting consequences would be one obvious drawback. Chemical complexing of the mercury to prevent its methylation is another possibility; this approach is currently being evaluated by the Swedes. Any proposal will certainly require careful study and the close cooperation of those involved.
3. A third important action would be to achieve a better

understanding of the health hazard as related to the ingestion of various types of mercury compounds and the establishment of realistic food tolerances. Such tolerances would not only better protect the consumer (and indirectly the angler), but would also help protect enterprises dealing with this food commodity from unwarranted seizures.

4. Consideration should be given to requiring the recording of the sale, use, and loss of mercury, particularly for monitoring inventories and possible losses to the environment. Communication of such information through agencies of the public sector concerned with public health and natural resources could create awareness to problem areas before disasters occur.
5. Toxicological studies should be conducted on selected fish species at all stages of their life history to determine acute and sub-lethal effects of the mercury pollutant. Also, studies of the food chain of these fish should be conducted where there is evidence of a concentration effect through the food chain. A profile of various mercury compounds would also be useful in selected species of fishery organisms, to facilitate a better understanding of changes evidenced by monitoring the environment.
6. Technical conferences should be held at appropriate intervals involving scientists qualified in areas of environmental concern. If held at the international level, prompt dissemination of current research findings could be insured. Coordination of programs is essential. Information must flow freely and rapidly among those concerned. Strong, non-partisan leadership will be required to overcome interagency and geographical hindrances.

(C) PORTIONS OF REPORT OF L. A. VAN DEN  
BERG, FEDERAL WATER QUALITY  
ADMINISTRATION, RELATING TO SOURCES  
OF MERCURY IN LAKE ERIE (pp 662-664).

(Paragraph numbers deleted).

Because of mercury discharges, the State of Michigan stopped the production of chlorine by Wyandotte Chemicals Corporation until a treatment system was developed and the mercury bearing wastes were removed from the receiving waters.

In our latest data on the 22nd of May, there appeared no discharge of mercury from that outfall.

The State of Ohio issued an order to the Detrex Chemical Industries, Inc., Ashtabula, Ohio, on April 13, 1970, to "... cease and desist the discharge of liquid industrial waste containing any mercurial compounds to waters of the State." Some operational changes were made but data collected on May 11, 1970, indicate that Detrex still discharged 1.2 pounds of mercury per day.

Allied Chemical Company, Buffalo Dye Division, Buffalo, New York, is a source of mercury to the Buffalo River. On May 8, 1970, a sample of the plant effluent revealed 0.12 mg/l mercury. The company stated that the process utilizing mercury was not in use on that day. Based on this information, Allied Chemical Company was discharging approximately 4 pounds of mercury per day from sources other than the reported production of disulfo intermediates.

The discharge from Diamond Shamrock, Painesville, Ohio, to the Grand River had a concentration of 0.010 mg/l mercury on April 4, 1970.

The first statement (of a written report, not submitted

in full in the record, Ed. Note) has to be changed. Recently received data revealed that concentrations of 0.002 mg/l occurred at the Ann Arbor, Wayne County, Wyandotte and Detroit sewage treatment plants. These were all on 24-hour composites on the 14th of May.

No measurable concentration of mercury was present in sewage treatment plant effluents investigated in Michigan (State data). Concentrations of 0.003 and 0.004 mg/l mercury were present in Euclid and Cleveland Westerly and Southerly sewage treatment plant effluents, respectively. Although no measurable concentration of mercury was present in the Cleveland Easterly sewage treatment plant effluent, which receives wastes from several users of mercury, 4 mg/kg were present in Lake Erie sediments 100 feet north of the discharge point.

On May 7, 1970, a concentration of 0.011 mg/l mercury was present in the outfall from the National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio. This occurred during a period when there was no discharge from lagoons that supposedly receive all mercury wastes from known sources.

Investigations of additional potential dischargers of mercury to Lake Erie are in progress by the State and the Federal Water Quality Administration.

(D) REMARKS OF MR. STEIN RE MERCURY  
TESTING AND OVERALL PROGRAM

(TRANSCRIPT, p. 717)

And let me make one last remark on this. We, and I think I, particularly, have given thought to this mercury problem, but they are talking about all toxic materials. If we can't do this on mercury which is a relatively easy one, what are we going to do on the others? That's why



I say I think we should look at this as kind of a pilot operation in dealing with the whole area of control of toxic materials and see if we can come up with a reasonable program that we can live with and the States can live with and the users of mercury can live with.





