PEOPLE OF THE STATE OF ILLINOIS, ex rel WILLIAM J. SCOTT, Plaintiff, PEOPLE OF THE STATE OF MICHIGAN, Intervening Plaintiff v. CITY OF MILWAUKEE, WISCONSIN; THE SEWERAGE COMMISSION OF THE CITY OF MILWAUKEE; and THE METROPOLITAN SEWERAGE COMMISSION OF THE COUNTY OF MILWAUKEE

No. 72 C 1253.

United States District Court for the Northern District of Illinois, Eastern Division

1973 U.S. Dist. LEXIS 15607

1973

[*1] Joseph V. Karaganis, Chicago, IL

Ewald L. Moerke, Jr., Schroeder, Gedlen, Riester & Moerke, Milwaukee, WI (defendant Metropolitan Sewerage Commission of the County of Milwaukee)

Michael J. McCabe, Assistant City Attorney, Milwaukee, WI (defendants City of Milwaukee and Sewerage Commission of the City of Milwaukee)

John F. Grady, District Judge

MEMORANDUM OPINION

This is an injunction suit brought by the State of Illinois against the City of Milwaukee, Wisconsin, and the two commissions which own and operate the sewage facilities serving the City and most of Milwaukee County. [1] The gravaman of the three-count complaint is that the sewage discharged by the defendants into Lake Michigan adversely affects the residents of Illinois and Michigan. Count I alleges that the conduct of the defendants constitutes pollution of an interstate waterway and is actionable under the federal common law of nuisance. This count is therefore based upon federal question jurisdiction. Counts II and III of the complaint set forth substantially the same allegations and are predicated upon the Illinois common law of nuisance and specific violations of the Illinois Environmental Protection Act respectively. [2] [*2] All three counts pray for injunctive relief. Service on the defendants was had pursuant to the Illinois Long-Arm statute. [3]

1 The Wisconsin cities of Kenosha, Racine and South Milwaukee were additional defendants, but they entered into a settlement with plaintiffs and were dismissed prior to trial.

2 Ill.Rev.Stat.ch. 111 1/2, §§ 1001 et seq.

3 Ill.Rev.Stat.ch. 110, § 17.

The case was initially filed by Illinois in the United States Supreme Court, invoking the original jurisdiction of that Court on the theory that it is an action between states. The Supreme Court held that these defendants are not a "state" for jurisdictional purposes, and denied Illinois' motion for leave to file an original bill. The Court then remitted the case to this court for trial. *Illinois v. Milwaukee, 406 U.S. 91, 98, 108, 31 L. Ed. 2d 712, 92 S. Ct. 1385 (1972)*. The Court stated that the case should be tried under the federal common law of nuisance and did not indicate whether Counts II and III should be tried as pendent claims. The defendants took the position in this court that only Count I should be tried, but I felt it was proper to take the case on all three counts, [*3] especially since I see no difference in the elements of proof required to support each of them.

The question of whether this is a suit between states was thought by the parties to have some importance in this court, since it has been held that principles of comity require clear and convincing evidence before the activities of one sovereign state can be circumscribed at the instance of another. *New York v. New Jersey, 256 U.S. 296, 65 L. Ed. 937, 41 S. Ct. 492 (1921)*; *Missouri v. Illinois, 200 U.S. 496, 50 L. Ed. 572, 26 S. Ct. 268 (1906)*. Defendants continue to assert that this is a suit between states, even though that question seems to have been disposed of by the Supreme Court. I have difficulty perceiving an identity between these defendants and the State of Wisconsin in this context, especially in view of the fact that the State has filed a suit against these defendants in the Wisconsin courts to restrain the very kinds of activities involved here. In any event, the question has become academic because I found the evidence in favor of plaintiffs to be clear and convincing.

The bench trial of the case took four months, and at the conclusion, I [*4] gave oral findings of fact and conclusions of law from the bench. The transcript of those remarks has been filed as my findings of fact and conclusions of law under *F.R.C.P. 52*. I found against the defendants on all three counts and ruled that they will be required to make extensive changes in their sewage collection and treatment methods. [4] The case was continued for a further evidentiary hearing on the timetable for these remedial measures. The parties then conducted additional discovery on this issue, and, on the date set for the hearing, submitted an agreed timetable, with the defendants reserving their rights to appeal on the merits. A final judgment order was then entered, incorporating the timetable.

4 See note 5, infra.

My findings and conclusions were probably too detailed and specific to this case to be of general interest. However, several of the legal points involved do seem to be of sufficient interest to warrant a published discussion. [5] As background, a brief reference to the facts will be helpful.

5 Everything said here was contained in the oral decision at the end of the trial, and publication of this opinion is not intended to supplement the record in the case.

[*5] The Milwaukee metropolitan area, with a population of about one million people, takes its water supply from Lake Michigan and, after sewage treatment, discharges the water back into the lake. Sewage - the used water, contaminated by solids - is collected by a network of pipes which, through gravity or with the aid of pumping, carries the sewage to one of two treatment plants. At the plants, a sequence of treatment processes occurs: The sewage is run through a series of grates and screens, to remove gross solids such as paper. The material removed in this manner is incinerated or hauled away to landfills. After screening, the water is conveyed to "primary settling basins," where it is held for a period of time to allow additional solids to settle out through gravity. Everything up to this point is known as "primary treatment."

The sewage is then given a form of "secondary" treatment known as the activated sludge process. The water which has received primary treatment is conveyed to "aeration basins" containing large numbers of microorganisms which feed on the contaminants in sewage. The metabolic processes of these organisms are enhanced by the presence of oxygen, which is fed [*6] into the basins under pressure.

From the aeration tanks, the water is drained into "final" settling basins and allowed to stand, so that more solids, including the organisms which have fed on the contaminants, can settle to the bottom. [6] The relatively clear water at the top of these basins, called "secondary effluent," is then treated with chlorine and discharged to the lake. The purpose of the chlorine is to kill any live infectious organisms which have not already been removed from the effluent.

6 These solids are then drawn off the bottom of the tanks. Additional phases of a sewage treatment plant involve disposal of the solids, but for purposes of this opinion it is not necessary to discuss them.

The treatment process, then, is basically a series of steps designed to take solid material out of the water. Aside from the initial screening, all of these procedures are designed to make the material settle. This takes time, and, particularly in the case of the final settling basins, it requires that the water not be agitated. If the sewage is taken through the plant so rapidly that there is inadequate primary settling time, inadequate aeration time, or inadequate detention [*7] time in the final settling basins, the solids simply will not be removed from the effluent to the desired degree before it is discharged to the lake.

Discharge of excessive solids to the lake is harmful from two standpoints. First, solids contain large numbers of bacteria and viruses which can cause disease if ingested by humans. These organisms, or pathogens, are contained primarily in the human fecal matter which is a part of the sewage. A small particle of fecal matter can contain literally millions of these microorganisms capable of causing disease. Chlorine will not penetrate to the

pathogens imbedded in solids, so that, to the extent a final effluent contains significant quantities of solids, the chlorination process is ineffective.

The other undesirable feature of solids in sewage is that they are rich in nutrients such as phosphorus and nitrogen which affect the quality of the water in the receiving lake by a process known as "eutrophication."

The basic problem with the Milwaukee area sewage facilities is that they are physically inadequate to treat the amount of sewage generated by the population of one million. The population has grown rapidly in recent years, but [*8] construction of sewage collection and treatment facilities has not kept pace. The result is that the sewage commissions have been faced for years with a continuing dilemma: If all of the sewage produced by the population is accepted at the two treatment plants, it cannot be adequately treated. To have adequate treatment, the flow to the plant must be shut off when capacity is reached; this would result in sewage backing up into basements unless some other expedient is found. The problem is aggravated in wet weather due to the fact that much of the Milwaukee area is served by "combined sewers." This means that storm water goes into the same pipes as sanitary sewage, greatly diluting and thereby increasing the amount of contaminated water needing treatment before discharge to the lake.

The defendants have dealt with the problem of inadequate capacity in three ways. First, they send sewage to the treatment plants in amounts which often exceed the capacity of the plants to render effective treatment. This is true in both dry weather and wet weather, although the problem is much worse in wet weather. Second, they discharge raw, untreated sewage in immense volume directly into the [*9] lake in wet weather. This practice is made possible by the existence of hundreds of "overflow devices" on their sewers which, when opened, will allow raw sewage to flow into drainage ditches, creeks and rivers, which, in turn, empty into Lake Michigan. The third thing the defendants have done is construct additional sewers and treatment facilities. This work represents but a small fraction of what will need to be done to bring about effective sewage treatment in the Milwaukee area. Before the decision in this case, the defendants' long range plans contemplated an ultimate treatment level which I have found to be inadequate to abate the nuisance. [7]

7 I have found from the evidence in this case that effective chlorination requires a final effluent containing no more than 5 parts per million of suspended solids and 5 parts per million of BOD (biochemical oxygen demand). This will require "tertiary" level treatment, involving the use of chemicals and filtration of the secondary effluent prior to chlorination. The defendants' goal was an eventual standard of 30 parts per million of suspended solids and 30 parts per million of BOD, standards attainable by efficient secondary treatment.

[*10] It was incumbent upon the plaintiffs, of course, to prove not simply that Milwaukee is contaminating its own drinking water but that the Milwaukee discharges have an effect upon the residents of Illinois and Michigan. I have found from clear and convincing evidence that the Milwaukee discharges do adversely affect the residents of

these other states, and I will explain briefly what the evidence has shown. There are two aspects of this, first, the public health problem and second the problem of eutrophication.

As far as public health is concerned, the evidence demonstrated that raw sewage and insufficiently treated sewage contain great numbers of viruses and bacteria which, when discharged into the lake, can live long enough to be transported to Illinois waters by the lake currents. The distance from Milwaukee south to the Illinois line is 39 miles, and the experts on both sides agreed that, at least on some occasions during the year, parcels of water from Milwaukee will be transported by the currents southward to Illinois. They disagreed as to how often this might occur, but I have concluded on the basis of this testimony that it probably happens at least six times a year. This [*11] contaminated water can cause infection in Illinois residents in two ways. It can be ingested by persons who are using the bathing beaches, and it can be ingested by persons who use contaminated drinking water. [8] (All of the residents of the Illinois shore use Lake Michigan as their source of drinking water). The illnesses caused by these water-borne pathogens are mostly non-fatal, but they are sufficiently disabling to be a matter of serious public health concern. [9] They include such diseases as shigellosis, salmonellosis, hepatitis and encephalitis, all of which are transmitted by pathogens contained in human fecal matter.

8 A swimmer will swallow about 10 milliliters of water during a session of swimming. Therefore, if there are viruses in the water, he can ingest them.

9 Water treatment plants do not always remove all viruses from the water even when operating at maximum efficiency. Viruses, which measure one millionth of an inch in diameter, are found in treated drinking water. Moreover, water treatment plants are not always operated at maximum efficiency.

The other problem is eutrophication. Briefly, this is a process by which the plant and fish life of the [*12] lake undergo changes due to an increase in the amount of the available nutrients. For example, there is a direct relationship between the amount of phosphorous in the water and the amount and kind of algae found in the water. Human fecal matter is rich in phosphorous as well as nitrogen, vitamins and minerals which encourage the growth of algae. Some of this plant life appears as a green scum on the surface of the water near shore. It can interfere with the recreational use of the water and also affect the taste and odor of drinking water. Most of the plant life is microscopic and is not recognizable to a layman as plant life at all; rather, it forms a mass of microscopic particles which result in a murky or turbid appearance of the water.

I have found from the evidence that the western shore of Lake Michigan is undergoing a process of accelerated eutrophication, evidenced by changes in the volume and species of algae, increased turbidity of the water and taste and odor problems in drinking water. Because there is an interchange of water along the western shore and between the inshore and offshore zones, the lake as a whole is affected, including the waters within the territorial [*13] boundaries of the States of Illinois and Michigan.

The situation in the inshore zone is not critical yet, and it is even less so in the lake at large. So far, there is no evidence that eutrophication has caused any changes in the fish life. [10] However, history teaches that there is no "critical point" at which one must start to worry. Eutrophication is a gradual process in which the changes from year to year are imperceptible. One must measure in terms of decades if not longer intervals to see the difference. Viewed in these terms, the evidence leaves no doubt that Lake Michigan is undergoing increased and accelerated eutrophication, especially in the inshore zone of the western shore. The situation is most dramatically illustrated by Green Bay, Wisconsin, north of Milwaukee, which, instead of obtaining its drinking water from the turbid bay on which it is located, has chosen to reach out across the Door peninsula to obtain its drinking water from Lake Michigan, 50 miles away. Green Bay is a cul de sac which exchanges its waters with the larger lake on a long term basis, and the nutrients put into the bay tend to stay there and promote the growth of algae on a more rapid basis [*14] than occurs in the larger lake. Unfortunately, Lake Michigan is itself a cul de sac, taking 100 years to empty into Lake Huron. Defendants' argument that the lake is simply too large to experience the dramatic impact seen in Green Bay loses force when one recalls that the same argument was made in regard to Lake Erie decades ago, when the alarms were beginning to sound. Experts of all varieties confidently predicted that the eutrophication seen in the inshore zones of Lake Erie would stay there and not extend to the lake at large. They were wrong, and Lake Erie, at least in its western basin, is a eutrophic lake, with all the problems that involves. While Lake Michigan is not in the sad condition of Lake Erie, neither is it in the relatively pristine condition of Lake Superior, where nutrient inputs from the smaller population inhabiting its basin are minor compared to those experienced by Lake Michigan. A secchi disc, a device to measure turbidity, dropped into the water of Lake Superior can be seen at a depth of 60 feet. In Lake Michigan, the disc typically cannot be seen past a depth of 10 or 15 feet.

10 There have been substantial changes in fish species in recent years - for instance, the disappearance of lake trout and the enormous increase in alewives - but plaintiffs did not attempt to attribute this to eutrophication. The phenomenon appears to be related to the introduction of new predators such as the sea lamprey which entered the lake through the St. Lawrence Seaway.

[*15] Nutrients are discharged into the lake by "point sources," such as paper mills and sewage treatment plants, and by "non-point sources," such as tributary creeks and rivers carrying the runoff from farm lands, and even the air, which conveys significant quantities of phosphorous and other chemicals into the lake. There is no means of identifying any particular molecule of phosphorous or nitrogen or any other chemical as having come from a particular source, either point or non-point. More than that, no one knows how much phosphorous there is in the lake or how much is being added each year. The ratio of point loadings to non-point loadings is unclear. It is only in recent years that any measurements have been made and any records kept. What is clear, however, is that Milwaukee is the largest point source on the lake and the only one of major significance on the western shore. (The Illinois communities on Lake Michigan do not discharge their sewage effluent into the

lake, but, rather, into a system of water courses connecting to the Illinois River.) There are no communities on the Michigan side of the lake which compare in size to Milwaukee. By their own measurements, the Milwaukee [*16] sewage plants discharge one million pounds of phosphorous into the lake each year. This is simply the amount contained in the treated effluent and does not include additional phosphorous contained in the raw sewage discharged directly to the lake during wet weather. By any analysis, the Milwaukee contribution of nutrients to the lake is substantial.

The foregoing should be a sufficient factual predicate for a discussion of the significant legal issues argued by the parties.

In regard to the public health aspect of the case, the defendants argue that there is no evidence of any actual outbreak of disease in Illinois caused by Milwaukee sewage. Therefore, they reason, there is no proof of any actual injury to the residents of Illinois and injunctive relief is not appropriate.

It is impossible to demonstrate that any Illinois resident has been infected by pathogens originating in Milwaukee sewage. Viruses and bacteria do not bear labels, and there is usually no way of knowing where they come from, except that the type of viruses and bacteria we are concerned with here are always water borne, they all originate in the human intestine and are contained in the fecal matter of infected [*17] persons. Evidence shows that most of the diseases caused by such pathogens are unlikely to be reported, and, if reported, are likely to be misdiagnosed. The typical symptoms are diarrhea, nausea and headaches - the kind of thing usually attributed to "the flu" or "a cold." The time and expense involved in isolating and identifying a virus is so great that the effort is rarely undertaken.

What Illinois has shown, and, as a practical matter, all it can show, is that its residents are subjected to a substantial risk of infection by Milwaukee sewage. I believe this is a sufficient showing to warrant relief. In *Missouri v. Illinois, 180 U.S. 208, 242, 244, 45 L. Ed. 497, 21 S. Ct. 331 (1901)*, the State of Missouri was complaining about pollution of the Mississippi River allegedly caused by sewage discharges from the City of Chicago. The State of Illinois protested that there had as yet been no showing of any harm to residents in Missouri. The Supreme Court rejected this argument:

In the first place, it is urged that the drawing by artificial means, of the sewage of the City of Chicago into the Mississippi River may or may not become a nuisance to the inhabitants, [*18] cities and towns of Missouri; that the injuries apprehended are merely eventual or contingent, and may, in fact, never be inflicted. Can it be gravely contended that there are no preventative remedies, by way of injunction or otherwise, against injuries not inflicted or experienced, but which would appear to be the natural result of acts of the defendant, which he admits or avows it to be his intention to commit?

The nature of equitable remedy in the case of public nuisances was well described by Mr. Justice Harlan speaking for the court in the case of *Mugler v. Kansas, 123 U.S. 623, 673, 31 L. Ed. 205, 8 S. Ct. 273*: "The grounds of this jurisdiction in cases of purpresture, as

well as of public nuisances, is the ability of courts of equity to give a more speedy, effectual and permanent remedy than can be had at law. They can not only prevent nuisances that are threatened, and before irreparable mischief ensues, but arrest or abate those in progress and by perpetual injunction protect the public against them in the future; whereas courts of law can only reach existing nuisances, [*19] leaving future acts to be the subject of new prosecutions or proceedings. This is a salutary jurisdiction, especially where a nuisance affects the health, morals, or safety of the community.

Another case which is pertinent to this point is *Harris Stanley Coal and Land Company v. Chesapeake and Ohio Railway Company, 154 F.2d 450, 454 (6th Cir. 1946)*:

> Though no injury had yet been shown to have been incurred by the railroad, possible future injuries may be enjoined . . . (citations omitted) and suits are not premature because the plaintiff does not await an actual test of the results of a proposed or threatened act.

In their argument on this question, the defendants seem to me to have confused two questions. One question is what elements the plaintiffs must prove to make out their cause of action, and the other is the standard of proof by which those elements must be established. The defendants contend that the evidence must be clear and convincing. I have adopted that view for purposes of this case. The defendants further reason that because the evidence must be clear and convincing, it must show an actual injury. Otherwise, they say, it is not clear and convincing. [*20] I believe that what plaintiffs must show by clear and convincing evidence is the existence of a hazard, whether or not that hazard has in fact eventuated in disease. It is the exposure to the hazard which is the injury justifying injunctive relief in this kind of case.

The second major argument of the defendants concerns the matter of eutrophication. Defendants argue that they cannot be held liable for their nutrient discharges into the lake in the absence of a showing that the elimination or reduction of those discharges would, of itself, "measurably" improve the condition of the lake. Many of the defendants' expert witnesses testified that a reduction or elimination of Milwaukee discharges would not have any "measurable effect" on the lake. Plaintiffs' witnesses testified that Milwaukee does make a substantial difference, but they had to admit that the difference cannot be stated in terms of any specific measure or quantity. Again, this is because no one knows the existing nutrient content of the lake nor what quantities are being added by each of the many point and non-point sources.

Defendants argue that on this state of the record there is no satisfactory proof of a causal [*21] relationship between their conduct and the problem of eutrophication of the lake. Moreover, they argue that, as an equitable matter, it would be unfair to require them to incur the great expense of improving their sewage treatment facilities when it is not demonstrable that there will be any corresponding benefit to the lake. In this connection, they point out that, whatever controls are imposed upon point sources, there will still be large inputs of nutrients from non-point sources which are not subject to control.

If defendants' argument were to be adopted, it would be impossible to impose liability on any polluter. If any one point source can defend successfully on the ground that its discharge alone is not causing the problem and that, without its discharge, the problem would still exist, then that defense would have to be equally available to all point sources. What is a good defense for Milwaukee would have to be a good defense for any other point discharger, especially since Milwaukee is the largest point discharger.

I believe it is sufficient for plaintiffs to show that defendants' nutrient discharges constitute a significant portion of the total nutrient input to the [*22] lake. The correct rule would seem to be that any discharger who contributes an aliquot of a total combined discharge which causes a nuisance may be enjoined from continuing his discharge. Either that is true or it is impossible to enjoin point dischargers.

The situation is somewhat analogous to that of joint tort feasors: Anyone who contributes to the injury is liable, even though his conduct, standing alone, might not have been sufficient to cause the injury. Here, it may be that Milwaukee's one million pounds of phosphorous a year would not cause a problem in the lake if there were no other phosphorous being added. But there is other phosphorous being added, and it is clear that the total amount of phosphorous being put into the lake is causing a problem.

There may be a discharge so small that, as a practical matter, it can be regarded as de minimis, even though as a logical matter it is still part of the whole. But clearly that is not this case. We are dealing here with the most significant [*23] point source on the lake.

There is not much authority squarely on point. The closest case I have found is the early decision of the Illinois Supreme Court in *Barrett v. Mt. Greenwood Cemetery Assn., 159 Ill. 385, 390, 42 N.E. 891 (1896)*. The court rejected the argument that the existence of non-point sources is a defense to point sources:

> [We] know of no rule of law that sanctions one wrong because another has preceded it. It is doubtless true that streams of water cannot be kept as pure when flowing through lands occupied by populous communities as when flowing through sparsely settled lands, but these effects that unavoidably arise from the occupation and cultivation of the soil by man do not justify the deliberate pollution of the stream of water flowing through another private property, in order that the interests of private persons, or even the public, may be enhanced thereby.

See also *Wickard v. Filburn, 317 U.S. 111, 127-128, 87 L. Ed. 122, 63 S. Ct. 82 (1942)*; *U.S. v. Ashland Oil & Transportation Co., 504 F.2d 1317, 1329 (6th Cir. 1974)*.

The last point deserving of discussion is defendants' argument that discharges by point sources in Illinois [*24] and Michigan are a defense. The evidence shows that a number of small municipalities on the Michigan shoreline discharge inadequately treated sewage effluent to the lake. The only Illinois community still regularly discharging into the lake is Waukegan, with a plant capacity of ten million gallons per day. (The combined capacity of the two Milwaukee plants is 320 million gallons per day.) Within the next few months, it is

expected that Waukegan will no longer be discharging to the lake except on rare occasions when overflows will occur. There are instances of wet weather overflows in Chicago when raw sewage is discharged to Lake Michigan. These are exceptional situations, however, and Chicago is in the process of planning large underground reservoirs to contain the excess storm water and prevent these overflows.

In short, there are point sources in both Illinois and Michigan which discharge pollutants to the lake. These sources are diminishing in Illinois, but it cannot be denied that they exist and that their existence is undesirable. The question is, does this somehow excuse the conduct of the defendants. The defendants cite *Missouri v. Illinois, 200 U.S. 496, 50 L. Ed. 572, 26 S. Ct. 268 (1906)*, [*25] and *New York v. New Jersey, 256 U.S. 296, 65 L. Ed. 937, 41 S. Ct. 492 (1921)*, both cases in which plaintiffs were denied relief because they had already polluted the waters in question to an extent that the results of further pollution contributed by the defendants were virtually imperceptible. Nothing like that exists in the instant case. [11] Despite the accelerated eutrophication going on in Lake Michigan, it is still a relatively clean body of water. Further degradation is not only a possibility, it is a certainty unless the defendants' conduct is enjoined. The cases cited by defendants are distinguishable on this ground, and I conclude that the existence of Illinois and Michigan point sources is no basis for denying relief in this case.

11 This is not a negligence case and "contributory negligence" on the part of some Illinois and Michigan communities is not a defense, even assuming that the conduct of those communities can be imputed to the plaintiff states.