

ILLINOIS POLLUTION CONTROL BOARD
October 30, 1975

IN THE MATTER OF:)
SEWER DISCHARGE CRITERIA) R 74-3
AMENDMENTS -- MERCURY)

OPINION OF THE BOARD (by Mr. Zeitlin):

This Opinion accompanies the Regulation adopted by the Board on September 29, 1975, providing a limited exemption for the laundry and cleaning industry from the sewer discharge criteria for Mercury in Rule 702 of Chapter 3: Water Pollution, of the Pollution Control Board Rules and Regulations. The exemption will last for approximately two years, and is tied to strict conditions.

The original Regulatory Proposal in this matter was submitted by the Professional Laundry Institute of Chicagoland on March 29, 1974, and was designated R74-3 by the Board. It was followed by a Supplement to Regulatory Petition, filed by the same proponents on March 21, 1975, (Ex. 1, 2).

Pursuant to publication, (Ex. 3, 4, 5), hearings were held in Peoria on April 28, 1975, and in Chicago on May 19, 1975. In addition to testimony from witnesses for the proponents, the Board heard testimony from the Institute for Environmental Quality, the Illinois Environmental Protection Agency, and the Metropolitan Sanitary District of Greater Chicago.

Neither the proponents nor any of the witnesses addressed the inherent dangers of mercury pollution. Pursuant to a pre-hearing conference, at which the Agency and the proponents were represented, the Board's prior Opinion in R70-5, In the Matter of Mercury Standards, 1 PCB 411 (1971), was entered as an exhibit at the commencement of the first hearing in Peoria, (Ex. 6). There was no objection by any of the parties to this procedure; nor did anyone question the Board's statements in R70-5 as to the overall magnitude of the health and environmental problems which can -and have- resulted from mercury discharges.

Instead, the proponents and all of the parties concentrated on the following issues:

1. The sources of mercury entering commercial laundries and cleaners are uncontrollable by those industries.

2. Present technology will not allow mercury removal by those industries which would meet existing general Board standards contained in Rule 702.

3. The specific exemption for mercury sewer discharges from the laundry and cleaning industries will not cause health or related environmental problems.

4. If the Board did not grant the requested exemption, essentially all of the mercury presently discharged by the laundry and cleaning industry would nonetheless be discharged into sewers or waterways, by home, commercial, or industrial sources doing their own cleaning, even if the laundries and cleaners went out of business.

Before examining these specific issues, however, it would be beneficial to examine the background of this regulatory proceeding.

BACKGROUND

On March 31, 1971, the Board enacted its general mercury standards, in R70-5, supra. In the Regulations adopted there, the Board set water quality and effluent standards of 0.0005 mg/l for mercury or any of its compounds. 1 PCB at 426. Of particular importance here is the fact that the effluent standards included any effluent "to the waters of Illinois or to a public sewer system . . ." Id. at 425, (emphasis added). Those standards were later codified by the Board into the present identical water quality, effluent and sewer discharge criteria standards. PCB Regs., Ch. 3, Rules 203(f), 408(a), 702(a). The exemptions to the mercury standards contained in R70-5, and later codified into Rule 702(b), have subsequently expired under their own limitations.

The Metropolitan Sanitary District of Greater Chicago (MSD) then adopted into its own ordinance the same standards as the Board promulgated under R70-5, (R. 236). Over the next few years, the Laundry Institute coordinated a group effort of the cleaning and laundry establishments in the Chicago area to meet this standard, as well as the other standards in MSD ordinances, (e.g., R. 13, 17, 25, 109, 112, 259). The principal efforts were not, however, directed to mercury effluent control; instead the Laundry Institute and the MSD

concentrated on methods to control hexane soluble discharges into sewers, heavy metals, and other compounds, (R. 72). In the words of one MSD witness, Stanley Whitebloom, ". . . like everybody else, . . . , we assumed that there was some treatment available for mercury, and as time progressed, we found that there was none." (R. 236).

That same conclusion was reached, eventually, by the laundry and cleaning industry, which had stated in the original mercury hearings that, "establishing stringent mercury discharge regulations need not be a handicap to the laundry and linen supply industries." Quoted in R70-5, 1 PCB at 416, (citing the hearing of Jan. 27, 1971 at pp. 328, 329). Their discovery that they would be unable to meet the general Board standards for mercury subsequently led to the instant Regulatory Proposal.

SOURCES OF MERCURY IN LAUNDRY WASTEWATERS

The hearings contained considerable testimony on the sources of mercury entering laundry and cleaning plants. Testimony indicated that there are two possible sources of mercury:

1. chemicals and soaps used in the cleaning process by the industry itself.
2. soil on the clothing or other materials to be cleaned.

While the testimony indicated that not all mercury has been removed from the chemicals and soaps used in commercial cleaning and laundering, it did indicate that most of the mercury has been removed, (e.g., R. 88, 94; Supp. Pet. Ex. D). There is even some question as to whether all mercury can be removed from the chemicals and soaps, (R. 64-68, 259). However, the mercury input from the industries' chemicals, soaps and processing compounds can, and has been, eliminated to the point where the industries have no mercury problem with those materials. (Interestingly, low-mercury soaps and processing chemicals are sold by one leading supplier in the Chicago area, but not elsewhere. This was a reaction to our general mercury Regulation and the MSD ordinance, R. 73.)

The remaining possible source of mercury in laundry and cleaning industry effluents is in the materials being cleaned. There was a general consensus of all the parties that this is the actual source of mercury. Mercury is apparently present in many, if not all, of the soils generated in our society, in concentrations sufficient to cause violations of the mercury sewer discharge criteria of 0.0005 mg/l. This seems to be true whether the materials to be cleaned are industrial wiping cloths, linens, uniforms or family laundry, (e.g., Supp. Pet. Ex. D).

Nor is it possible for the laundries to classify the garments to be washed or cleaned with a view toward eliminating the worst soils entering the individual establishments, (R. 89, 215, 214). Mercury concentrations in identical items vary widely, (Supp. Pet. Ex. D). Based on these facts, the proponents argue that it is impossible for them to eliminate the source of mercury input into the laundry and cleaning industry, without eliminating the industry itself.

TECHNOLOGY AND ECONOMICS OF MERCURY REMOVAL

Again, there was a consensus on this point: no economically reasonable and technologically feasible method of removing mercury from laundry and cleaning industry wastes presently exists. Filtration, flocculation, precipitation and other methods were all discussed in the exhibits and at hearing, and it was generally agreed that no adequate treatment method now exists.

One study, Mercury in Laundry Wastewaters, a literature study prepared for the Institute for Environmental Quality by Dr. James Patterson, reported a successful carbon filtration method. IIEQ Doc. No. 75-10, (Ex. 12). However, further examination of this method, developed by the U. S. Army for small-scale field use, indicated that it is simply not compatible to the wastes and wastewater volumes generated in commercial laundries, (R. 284-286). Problems with cost, sludge generation and other factors would prohibit any commercial use of the Army method. Dr. Lue-Hing of the MSD stated that use of that method by MSD would generate 7,000 additional tons of sludge per day, as opposed to the 750 tons generated now, (R. 280).

This is not to say that the laundry and cleaning industries have not attempted to find some treatment method which will work. As part of a general effort to comply with MSD discharge ordinances, the Laundry Institute investigated various methods, including one with federal assistance, none of which proved to be a viable solution to the mercury problem, (R. 112-114, 123). Individual companies have also attempted to find a workable mercury technology, at their own expense, without success, (R. 85, 212). Although the treatment technologies attempted were initially designed to treat other pollutants, such as hexane solubles, each was also tried as a mercury-control method, without success. In summary, the record demonstrates clearly that it is not presently possible for the laundry and cleaning industry to meet the Board's 0.0005 mg/l sewer discharge criteria for mercury.

HEALTH AND ENVIRONMENTAL EFFECTS

Although Dr. Lue-Hing did state that laundry industry discharges into sewers contribute to violations of the mercury standard in MSD effluents, we nonetheless feel that the grant of a temporary exemption will not cause any serious health effects or environmental damage, (R. 251, 265). The testimony indicates that present MSD effluents into Illinois waters are generally within the mercury standards, with localized effluent standard violations, (e.g., R. 250). The Record indicated only one minor violation of the mercury water quality standard, in the area receiving discharge from the MSD North Side Treatment Plant. That violation is quite localized and short-lived.

With so virulent a poison as mercury, however, it might be argued that any violation of the effluent or water quality standards should not be tolerated. However, the denial of this exemption would serve no health or environmental purpose; the mercury would not be eliminated.

ALTERNATIVES TO THE EXEMPTION

The Board's Opinion in R70-5, supra, noted that the mercury regulations adopted there might have the effect of driving some industries out of business, if they were not able to comply with the mercury Regulations. 1 PCB at 424 (Supplemental Opinion of Mr. Aldrich). Here, however, the retention of the general mercury standard, which the laundry and cleaning industry cannot presently meet, would not eliminate the mercury presently entering sewers, even if the laundry and cleaning plants were closed. In addition, were that the case, there would appear to be a likelihood that mercury discharges to sewers might actually increase if uncontrolled chemical compounds and soaps were to be generally used. This point, which we find valid, is based on the reasoning that even if the laundry and cleaning industry plants were to close, the clothes and other materials presently being cleaned at those plants would still be cleaned, probably by the present customers of the laundry and cleaning industry.

In that situation, the mercury in the soils would still be released, whether from family facilities or from small individual laundry or cleaning facilities at commercial or industrial locations, to include hospitals, hotels, factories, and restaurants, or other service facilities. In addition, the chemicals and soaps used by many smaller facilities would be more difficult to control. The mercury in each individual effluent would undoubtedly be smaller, and even diluted to lower concentrations, but the mercury would nonetheless be discharged, (e.g., R. 258).

THE REGULATION

Rule 702(e). The exemption provided here is set in a new, separate subsection of the sewer discharge criteria Regulation for mercury to keep it separate from the other present and expired exemptions contained in subsections (b) and (c).

Subsection 702(e)(i). To standardize the definition of the industries affected by the exemption, and particularly as a limitation, the Board adopted the Standard Industrial Classification Manual definition issued by the United States Government. The definition offered by this subsection is more limited and specific than the general "laundry industry" definition offered in the original proposal. It was our intent, in using the adopted definition, to exclude small laundry or cleaning operations which are used on-site by some other industry, for which there might be more difficulty in policing the further limitation in subsection (ii).

Subsection 702(e)(ii). By limiting the amount of mercury that those utilizing the exemption may add to that entering in soils, we are requiring the industries affected to reduce the levels of mercury in their effluents. Where mercury discharge levels are presently low, this subsection will prevent future use of high-mercury soaps or cleaning compounds, which might increase effluent mercury concentrations. In effect, we are requiring the laundry and cleaning industries to continue their present efforts, and to do all that is possible to lower the amount of mercury in their effluents.

Subsection 702(e)(iii). We are confident that some of the research in progress, whether by the individual laundry or cleaning companies, their associations, or others, will eventually be successful. It was seen in the record here that we may be close to a technologically feasible and economically reasonable method of removing mercury from laundry and cleaning industry effluents.

This subsection, in conjunction with the following one, is intended to keep present research going, and to emphatically prompt further future efforts. The record here simply will not support a permanent exemption.

Subsection 702(e)(iv). The two year time limitation was based generally on the Agency's suggestion at the Chicago hearing. We feel that no permanent exemption has been justified. A two year exemption will allow us to review the state of the art for mercury removal before granting any continued exemption in the Regulation.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion was adopted on the 30th day of October, 1975, by a vote of 4-0.


Christan L. Moffett, Clerk
Illinois Pollution Control Board