ILLINOIS POLLUTION CONTROL BOARD

April 7, 1971

In the Matter of) MERCURY STANDARDS)))) HR 70-5

Supplemental Comments to Opinion of the Board Samuel R. Aldrich, Board Member

The opinion written by Mr. Currie and adopted by the Board March 31, 1971 is generally an excellent statement and I support most of it wholeheartedly.

I desire to comment on four points.

1. The rationale for setting the standard at the lowest point that can be measured with readily available technique (atom absorption in the case of mercury). Because of the highly toxic nature of mercury and the known pathways by which it is transformed and redistributed throughout the environment it may be acceptable to set the standard at the lowest feasible limit based upon available analytical procedures. The same logic may be applied to cadmium and a few other elements.

I feel, however, that with few exceptions, we must be guided by proven hazard levels, either by direct intake or after concentration within the food chain. Scientific technology conceivably can develop far more sensitive measurement techniques but that does not mean that we should base standards upon them. In the case of mercury, the Board did not set the standard at the analytical limit of a more sensitive technique (neution activation) as discussed in the opinion because it is not generally available. The inference is that if neution activation were readily available, the standard might be lower than .5 ppb. I would not support that as a logical basis for a lower standard.

2. Assumptions that guided the Board in reaching a standard of .5 ppb.

The standard is far lower than that set or thus far recommended by other boards and agencies for food or drinking water. The strict standard was justified at least partially on the following assumptions which have not been proven.

a. That mercury is not detoxified or lost into some inert natural sink.

- b. That eventually all morcury (elemental or compounds) converts to soluble or volatile methyl morcury which is highly toxic.
- c. That there is either no threshold of tolerance to methyl morcury or that it is "as low as a handful of parts per billion" for aquatic life and "may be harmful to man in the parts-per-billion range". The majority opinion of the Board appears to be substantially influenced by the assumption that there is no tolerance to methyl mercury.
- d. That mercury use in paints has only adverse possible health effects.

To the contrary, moreovy in paints controls several species of wolds and fungi to which many persons have allergic reactions. Until acceptable substitutes are found and adequately tested, it is envirely possible that the potentially harmful effects from the use of mercury in certain paints is offset by the benefit from the control of allergenic organises.

The concept of benefit/risk is recognized in the majority obinion which excepts hospitals from the .5 ppb standard.

3. A zero standard required in certain offluents.

A unique situation obtains when the intake water for an industry or municipality is already at the established water quality standard for the receiving water. The screary standard of the PCB does not give the water user the right to add .5 ppb.

In that case the offluent standars is zero. In the case of mencury, and perhaps many other constituents, the background level is to be substructed from the listed offluent standard in determining the tolerable offluent level for the industry or municipality.

We know that the cost to rerove pollutants rises curvilinearly. The last 10 percent may be as costly to remove as the first 90 percent: the last 1 percent as costly as the first 99 percent.

The Environmental Protection Agency requires the Board to consider oconomic reasonableness in setting standards.

In order for the Board to order a complete ban on any discharge to a stream or lake, I feel that the Board must have irrelatible evidence that: 1) there is no natural decoxification; and 2) the 1 feature of the term of the number is at the level of the water quality standard. The Act requires the Board to consider technical feasibility and economic reasonableness. Granted that mercury is an extremely hazardous element, I have reservations as to whether we follow the guidelines in the Act when we require an industry or municipality to do one of the following:

- 1) remove 100 percent of their contribution.
- 2) install a completely closed system with attendant waste disposal problems.
- or 3). close the factory.

Because of the considerations described here, I register misgivings about the proposal to force all users of mercury to meet the zero effluent standard where the extremely strict standard of .5 ppb is encountered in intake water. In the long run it seems to me that downstream dilution will somehow need to be considered so as to modify the zero effluent standard for existing industries.

Dame (R. H. Kinch

Samuel R. Aldrich Member, Illinois Pollution Control Board

I Regina E. Ryan, Clerk of the Jllipois Pollution Control Board certify that Dr. Samuel R. Aldrich submitted the above opinion on 7 day of April, 1971.

Recina E. Ryan

Clerk, Illinois Pollution Control Board