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Legal Bulletin on Water Pollution*

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In the last several years there has been a growing concern in the scientific community about the problems of environmental pollution. This concern has begun to effect the attitudes of the general public. However, since 1966 when the New York State Legislature adopted the Pure Waters Bond Issue and in 1967 adopted the Pure Air Quality Standards Act, there has been very little time spent by the New York State Legislature concerning the problems of environmental pollution. The Governor, in his annual message, indicated his concern about the problems of environmental pollution, but was satisfied to introduce only a few bills whose function was to implement and enforce existing standards. None of these bills were adopted by the Legislature. The only laws that were passed by the Legislature, which affect the environmental pollution problems of the State of New York, were the additions to the Public Authorities Law to provide that the Pure Water Authority, which was previously given the power to advise local municipalities on how best to finance and construct sewage disposal systems, the power to finance its own sewage disposal systems and to then lease these systems for operation to the municipalities. This will hopefully be a more efficient way of constructing modern sewage treatment plants and auxiliary systems. It is obviously too early to tell whether the Pure Waters Authority will be able to implement powers given to it by the Legislature.

The one statute that was passed that will hopefully safeguard the public waters of the State, was an amendment to Section 1230 of the Public Health Law. In the future, any person, corporation or public authority intending to build a nuclear steam electric power generating plant must supply the Commissioner of Public Health an environmental feasibility report at the same time it files its preliminary safety analysis report with the United States Atomic Energy Commissioner. No public authority, person or corporation can construct a nuclear steam electric generating facility or increase its capacity without a permit being issued by the Commissioner allowing them discharge from such facility to the waters of the State. The department has the right, prior to the issuance, to conduct a public hearing, but does not have to conduct such a hearing. Prior to this law, the only right the State had was to regulate discharges into the State's waters. However, it can only be regulated once the plant has been constructed. The problems that would occur after construction of a plant to attempt to regulate its discharge are self-evident. Now the State has the right to attempt to determine what thermal changes will occur prior to the commencement of construction of the plant. There is no provision in the act as to the amount of radioactive materials.

The Water Resources Commission recently established regulations governing the discharge of heated liquid into the State waters. The basic criteria are:

Non-trout Streams -- A maximum permissible surface temperature of 90 degrees at any single point. At least 50 percent of the volume of the stream, including one-third of the surface waters, may not be raised more than 5 degrees or beyond a maximum of 86 degrees, except on periods of the year when stream temperatures are below 39 degrees.

Trout Streams -- No discharge beyond 70 degrees. During June through September no discharge permitted that will raise stream temperatures more than 5 degrees or to a maximum of 50 degrees, whichever is less.

Lakes -- No discharge that will raise surface temperatures more than 3 degrees beyond a radius of 300 feet or equivalent areas.

Coastal Waters -- No increase of more than 4 degrees in surface temperatures over the monthly high average during October through June, nor more than 1.5 degrees during July through September beyond a radius of 300 feet or equivalent area.

Estuaries -- No increase beyond 90 degrees surface temperature at any single point. At least 50 percent of the volume of flow of the estuary, including at least one-third of the surface water may not be raised more than 4 degrees or a maximum of 83 degrees, whichever is less. During July through September, if surface temperatures exceed 83 degrees, an increase of not more than 1.5 degrees will be permitted at any given point.

The thermal regulations which have been adopted received criticism in public hearings and by the other route customary in New York's political system. Much of the opposition by industry, particularly the utilities industry may be characterized adequately as simple opposition to regulation as being unnecessary and undesirable. However, a constructive criticism was made to R.C.S.I. by Mr. Francis E. Drake, Jr., Chairman of the Board of Rochester Gas & Electric Company:

"In relying on a simple temperature difference, the regulation encourages discharge below the surface, thus increasing the total amount of heat in the water and increasing the time before the heat radiates to the air."

The described effect is correct. Furthermore, there is also encouragement to mix in cold water in greater quantities to meet the temperature regulation.

As an initial attempt at regulation, the simple temperature difference criterion might be defended on the ground of practicality. In the extended view, the need is for judgment on the effect on complex and varied biological communities. The necessities for environmental protection are careful site selection and ecologically guided designing. Since the number of plants are relatively few, and since the cost of each is enormous, it is entirely practical to make the investment required for individual evaluation.

Site selection, design approval, and both pre- and post-operational studies by public agencies with adequate technological resources were advocated in testimony submitted by the Cornell University Water Resources and Marine Sciences Center before the New York State Water Resources Commission in the hearing held in White Plains, N.Y. on March 14, 1969 (before passage of the regulations). Part of the text is included in this bulletin as a respect view on further steps which the State should consider quickly. A brief but significant inclusion by the Cornell group is the assertion that there should be "trout lakes" as well as "trout

streams". Since they would place Cayuga in the trout lake category, the recommendation was also in effect an added argument against the proposed Bell Plant, where work has been suspended. See R.C.S.I. Bulletin, May 1969.

"If the New York State Water Resources Commission determines to adopt the proposed criteria for use by the State we believe that consideration should be given to the following:

a) A new classification of Trout Waters-Lakes should be included following Trout Waters, (page 3 of the proposed criteria); appropriate criteria should be established for such lakes (e.g. Cayuga Lake);

b) With reference to the classification Lakes (page 3, proposed criteria):

1) The word "surface" in the first sentence should be defined so as to define the acceptable depth (e.g. the top inch; 1 foot; ten feet?);

2) "Equivalent area" should be defined carefully. A 300 foot radius equivalent can extend, in a lake situation, to an elongated narrow plume. Such a plume may not be acceptable to some sites;

3) The second sentence notes that '...the thermal discharges shall be confined to the epilimnetic area.' It would be more important to indicate that the 'thermal effects shall be confined to the epilimnetic area' if the hypolimnion of salmonid and trout lakes are not to be adversely affected;

4) It is noted '...that within a radius of 300 feet...from the point of discharge, this temperature (30°F above the existing temperature) may be exceeded'. Some limit should be stated with respect to discharges of any point due to the distinct possibility of outfall design which can maximize mixing and thus entrapment of heat in the water to the detriment of the environment.

"The standards as stated seem to allow for full review on a site by site basis with the imposition of requirement that are responsive to the character of the site. This should be made more explicit and mandatory in any case where the proposed use of water is relatively large or the heat discharge is relatively large to the total contained in the body of water at issue. Proportions under ten percent, and in the case of stratified lakes this should be of the epilimnion, are in order. Large plants in particular pose a pollution threat and as a normal cost of production must assume at least part of the risk for environmental effects. Social costs for a product like electricity include the cost of fuel, labor and other operating costs, the cost of the investment and its maintenance plus the costs transferred to others due to any degradation of the environment. Just as in any other part of the costs an element of risk is also a part of the cost. It is reasonable, we believe, that a product enter the competitive market reflecting the full costs of its production in its price. Any subsidy should be directly identified and judged as such.

"By this we mean that the large plant should be expected to provide a detailed evaluation of its effects on the environment. The public agencies making the appropriate review need the technical capacity to evaluate its adequacy. And jointly or separately the public and the developers of the site should invest enough in post operation evaluation studies to confirm the evaluation made and identify the need for further corrective actions. This suggests that the less that technological means are used to prevent the discharge of heat to the aquatic environment, in particular, the more important is the careful development of pre- and post-operational evaluations. This is part of the cost of taking risks with environmental quality."