

UNIVERSITY OF HAWAII

Environmental Center

Office of the Director

PROPOSED AMENDMENTS TO PHR CHAPTS. 37 & 37-A
Statement for Department of Health Public Hearing
31 July 1973
By Doak C. Cox, Director
U.H. Environmental Center

On 9 July 1973 a number of general and specific comments on the amendments proposed to Chapters 37 and 37-A of the Public Health Regulations were submitted to the Department of Health by the U.H. Environmental Center. These comments had been reviewed briefly by Jerry Johnson of the Center and Hiroshi Yamauchi of the Water Resources Research Center, but because general Environmental Center review of the proposals was incomplete, they were identified as mainly as a personal review. Subsequently, on 19 July we transmitted additional commentary by Henry Gee of the Water Resources Research Center on the phosphorus standards in fresh water streams proposed for inclusion in Chapt. 37-A.

This statement is intended not only to confirm the comments previously submitted but to add additional comments on points concerning which questions have recently been brought to our attention. The earlier comments will merely be summarized in this statement. Copies of the 9 July and 19 July submittals are attached for convenience in reference to them in detail. This statement has been reviewed by Jerry Johnson, Environmental Center, and Hiroshi Yamauchi and Henry Gee of the Water Resources Research Center. It should not, however, be regarded as representing the institutional position of the University.

CHAPTER 37

Essentially what would be accomplished by the very complete revision proposed for Chapter 37, the Water Pollution Control regulations, is the placement of a major part of the State water quality regulation structure, even as to details, within the framework of the Federal Water Quality Act Amendments of 1972, PL 92-500. To a considerable extent this placement is unavoidable if the State is to have delegated back to it by the federal Environmental Protection Agency the powers of actual implementation that, prior to the passage of PL 92-500, were state powers. However, if conformance with the appropriate requirements of PL 92-500 were extended to incorporation of arbitrary provisions misfit to the Hawaiian environment in our State regulations, there would be little or no gain to the people of Hawaii and potentially much loss.

It is important that the State retain as much control of the water quality standards, effluent standards, and general pollution control as is possible under the federal act. In particular, it is important that the State retain its authority over the adoption and amendment of standards. The experience of the last several years indicates that standards proposed by federal agencies, however sensible they may be in a temperate continental environment, are unlikely to be suitable in Hawaii's tropical, oceanic setting. The proposed amended regulation recognizes present State standards but makes no provision for their amendment.

As we have pointed out in our detailed commentary, 13 of the 20 sections of the proposed amended Chapter 37 relate to National Pollutant Discharge Elimination System permits. Yet even these permits are not specifically tied into the control provisions in the General Prohibition section of the Chapter, and there is no mention in that section of such sanctions now provided by the State as "zones of mixing."

The entire draft of the proposed amended Chapter 37 much too slavishly reproduces EPA guidelines for implementation of PL 92-500 without addressing itself primarily to needs of the State. A trivial but illuminating example is the use, in defining a minor discharge, of the criterion that such a discharge "does not affect the waters of any other state." Since no waste-water discharge in Hawaii affects the waters of any other state, except in the most extremely indirect and inconsequential way, the incorporation of this criterion cannot be regarded as anything but blind acceptance of a federal recommendation.

CHAPTER 37-A

In our earlier review on Chapter 37-A, the Water Quality Standards regulations, we commented on a number of unsatisfactory details in the proposed draft. Here we wish to extend the discussion of one point considered in our earlier commentary and to discuss in addition an important point we previously overlooked.

Phosphorus standard for fresh waters

In our 9 July review we questioned whether the current state of knowledge of nutrient concentrations in streams of the state justified the adoption of phosphorus standards for waters of Classes 1 and 2, and we pointed out the absurdity of allowing no change whatever from natural ratios of nitrate to phosphate or of ortho-phosphate phosphorus to total phosphorus. On 19 July Henry Gee pointed out that the proposed tolerance of 0.050 mg total phosphorus per liter is exceeded even in natural flows of stream in undeveloped watersheds, and that the phosphorus concentrations are of no significance in Hawaiian streams because of the high velocities of flow and other characteristics.

It should be pointed out that nutrients are essential to life as well as detriments if present in excess. Even if reductions of nutrient concentrations below natural levels were feasible, such reduction would be generally quite undesirable because of the deleterious effects on the aquatic biota.

The proposed standard is actually the more stringent of two discussed in EPA guidelines. It is related to the control of eutrophication in lakes, whereas a concentration of 0.100 mg/l is discussed in relation to the control of nuisance growth in streams. It is difficult to believe that the EPA would actually recommend either level in the face of the information presented by Gee on phosphorus levels in Hawaiian streams and it is unbelievable that the technical staff of EPA would concur in such a recommendation. They are already familiar with the fact that the present State nutrient standards for coastal waters are meaningless because of their establishment below naturally occurring concentrations at the urging of EPA's predecessor, the Federal Water Pollution Control Administration.

Although the EPA may strongly recommend that some phosphorus standard be set for fresh water streams, we believe that it would be arbitrary, capricious, and "totally without redeeming social values" to adopt a standard lower than about 0.2 mg/l. In the light of the range of concentrations reported by Gee (extending to more than 0.7 mg/l) we doubt that the State can actually anticipate reducing phosphorus concentrations even to that level.

The absurdity of a standard for the ratio of nitrate nitrogen to phosphate phosphorus is indicated by findings in Kahana stream which drains an undeveloped valley. According to Gee, the N/P ratio in Kahana stream has a hundred-fold natural range, from 0.73 to 76.0. A standard permitting no change from the natural ratio is meaningless if the natural range in the ratio is so great.

Inclusion of irrigation systems in Class 2 waters

We did not earlier recognize the implications of the proposed addition of "canals, ponds, lakes [and] reservoirs" to the original Class 2 water categories of "fresh water streams and rivers" (subsec. 5.B.2), or of the proposed additional phrase "whether publicly or private owned." With the proposed changes the Class 2 waters would include: a) the waters of irrigation ditches and reservoirs receiving and putting to beneficial use the discharge of wastewaters, for example those from sugar mills; b) the diversion ditches and holding ponds that were especially created to prevent tailwaters from irrigation systems escaping to coastal waters, and c) even sewage treatment ponds. The wastewaters to be reused for irrigation, the diverted tailwaters, and obviously the sewage could not be expected to meet Class 2 standards.

The State has a legitimate and proper concern with the quality of the waters of those large reservoirs that are used for public recreation, such as the Wahiawa Reservoir, and the waters of natural lakes and ponds, as well as those of natural streams. To include the waters of such bodies without including waters in which the quality is not and cannot meet the standards, we suggest three alternative revised wordings for subsec. 5.B.2:

a) All natural fresh-water streams, rivers, ponds, and lakes and all reservoirs resulting from the damming of natural perennial streams;

b) All natural fresh-water streams, rivers, ponds, and lakes and all reservoirs of more than _____ million gallons storage capacity [A limiting storage capacity would have to be identified for this alternative]; or

c) i) All natural fresh-water streams, rivers, ponds, and lakes, and

ii) The following natural reservoirs: _____. [This last alternative would require individual identification of the reservoirs on each island to be included.]

It is possible that some reservoirs meeting the criteria of the first alternative are used appropriately for wastewater storage. Hence, unless a comprehensive survey of all reservoirs meeting these criteria is made, it seems safest, at least initially, to adopt the second or third alternative.

Inadvertent inclusion of groundwater

The classification and establishment of Class A coastal waters on Oahu (5.A.1.b), Kauai (5.A.2.b), Molokai (5.A.4.b), Lanai (5.A.5.b), Maui (5.A.6.b), and Hawaii (5.A.7.b) have been proposed for amendment to add "non-tidal brackish and saline waters" to the "coastal waters not included in any other class." This amendment was proposed to meet EPA objections that the present classification does not cover brackish and saline waters that are non-tidal and hence not included in coastal waters as currently defined. The proposed amendment is objectionable, however, in that as now phrased, it would not be limited to surface waters but would cover groundwater as well. The standards for Class A coastal waters are not pertinent to groundwater.

The objection might be met by inserting the word "surface" in the proposed addition: "non-tidal brackish and saline surface waters." However, because it seemed probable that the standards for Class 1 waters would be somewhat more pertinent to the waters in question than the standards for Class A waters, we recommended on 26 April that the EPA objection be met by incorporating these waters in Class 1 through the addition to subsec. 5.B.2 of the phrase "and all non-tidal brackish and saline surface waters not included in any other water-use classification."