Mr. Paul De Falco, Jr.
Regional Administrator
U.S. Environmental Protection Agency
100 California Street
San Francisco, California 94111

Dear Mr. De Falco:

I understand that EPA is now inclined to disapprove the Kanaha Pond site for the Wailuku-Kahului sewage treatment plant and injection wells and to require that Maui County locate these facilities at the "Kaa site" near Kahului airport. I also understand that the change in plans is attributed, at least in part to recommendations from the Environmental Center. I understand, further, that the change in plans will result in a long delay in the construction, and that the costs will be between $3 and $4 million greater than those originally estimated for the construction at Kanaha.

I believe that we did suggest that a site in the general vicinity of Kaa might be superior to the Kanaha site, either in our testimony for the public hearing about a year ago or in our review of the EIS for OEQC about half a year ago. At least we indicated that the EIS consideration of the Kaa site seemed inadequate. However, at least at the hearing, we recommended proceeding with construction at Kanaha to avoid delay. A long delay followed by a requirement for a change in site cannot be attributed to any recommendation from us.

Several questions merit discussion in comparing the two sites:

1. Effects of injection on groundwater and on Kanaha Pond. As we have previously indicated, we believe that there is little chance that the injection of effluent as planned would have any significant effect on Kanaha Pond or its wildfowl. There would be no equivalent effect from injection at Kaa. Although I believe that the groundwater hydrologic analysis of the Maui County consultants was faulty, both as to the specific capacity of the injection wells and the trajectory of the effluent, I think that effluent injection should be feasible at either site. Hence, although the Kaa site appears to be possibly superior on the basis of groundwater and surface water effects, the advantages are slight and speculative.
2. Effects of effluent on coastal waters. Because I believe that the effluent injected at either site would wind up at about the same place in the coastal waters, I see no basis for choice between the two sites related to this question.

3. Effluent reuse for irrigation. I don't know enough about the potential for future reuse of the effluent for irrigation at the two sites to comment on this possible source of differential advantage.

4. Surface interference with Kanaha Pond wildfowl. Some point has been made that the sewage treatment plant would constitute a third quadrant of artificial development around Kanaha Pond, adding to the disturbance of the wildfowl from the Kahului industrial development to the west and the highway to the south (or possibly the fourth quadrant if the airport is a source of disturbance to the east). I would want to check with someone like Andrew Berger, but I would not think that the disturbance of the sewage treatment plant would be of much significance. No equivalent disturbance would result from construction at Kaa.

5. Shoreline erosion. As we and others have commented, the shoreline at Kanaha is retreating, and the treatment plant would be threatened by further retreat. The general shoreline at Kaa has also retreated in recent decades, but it may not be retreating now. In any case there would be no necessity to locate the plant at Kaa right on the dune ridge as would be made necessary at Kanaha by the presence of the pond inland. Hence the Kaa site seems clearly superior on this count. I would reject any argument that the beach protection that would have to be provided to the plant at Kanaha would be advantageous in protecting the pond from ocean encroachment. If the beach ridge retreats it is not removed, but merely shifted landward. I would expect a beach ridge still to separate the pond from the ocean. Further, intended beach protection measures too often turn out to be counterproductive and actually result in accelerated loss of sand.

6. Tsunami hazard. We made a point about the tsunami hazard at the Kanaha site. Construction to cope with the hazard may be perfectly feasible at this site, but at Kaa the plant could be located further inland and, if desired, at higher elevation to cope with the hazard more efficiently. Hence I think the Kaa site is clearly more advantageous on this count.

7. Cost. I think that two groups of the components of extra cost now estimated must be distinguished: a) additional costs attributable to the lost of a favorable bid for the construction at Kanaha a year ago and to the effects of inflation since; and b) additional costs attributable to a change in site.

a) It seems to me that EPA must be considered responsible for the first group of extra costs. I understand from Stan Goshi that it might still be possible to accept the original bid with a relatively minor price adjustment. If so this would clearly represent an advantage to proceeding with construction at Kanaha.

b) The costs attributable to change in site must be looked at very critically. Clearly there will be additional costs due to (i) additional sewer main length and (ii) some additional pumping head. Additional costs have also been estimated on account of (iii) further foundation and well exploration, (iv) new plans, and (v) more costly foundations. There might also be a differential
in ease of effluent injection. I think that further foundation exploration and particularly a new test well would be prudent at the Kaa site, but I do not anticipate that the injection potentials would be significantly different at Kaa than at Kanaha, and there are good reasons for believing that both easier well construction and better foundations would be found at Kaa than at Kanaha. Stan told me that some additional foundation test holes were drilled at Kaa Point itself, and that materials of lower bearing capacity were found there than at Kanaha. A glance at the Maui geologic map before I left explained why. It shows:

![Geologic Map of Kihei Area]

Except in the immediate vicinity of Kaa Point the foundations would be bedrock lavas covered with residual soil—providing excellent bearing capacity. As I noted above, the plant could be located inland of the beach and at an elevation sufficient to provide some tsunami protection, and it would not have to be located on the alluvium of the little intermittent stream meeting the ocean at the point. I really do not believe that the higher foundation costs at Kaa can be sustained, but rather that with good geologic guidance the foundation costs would be minimal. Stan apparently agrees with me that the development of plans for construction at Kaa would be simple because the same components would be used as at Kanaha, with only such rearrangement as might take advantage of the terrain.

8. Delay. If Stan Goshi is right that the original bid for construction at Kanaha can be accepted, the construction as planned has clearly a great advantage in minimization of delay. The advantage is lessened if the Kanaha plans would have to be modified and again advertised for bid.

To summarize, the use of the Kaa site would have the following advantages (+) and disadvantages (-) as compared with the Kanaha site:

1. Effect on groundwater and Kanaha Pond +
2. Effect on coastal waters 0
3. Effluent reuse for irrigation ?
4. Interference with wildfowl +
5. Shoreline erosion +++
6. Tsunami hazard ++
7. Cost
   a) Delay up to now  0
   b)(i) Additional pipeline  --
       (ii) Additional head  -
       (iii) Further exploration -
       (iv) New plans -
       (v) Foundations ++
       (vi) Injection 0?

8. Delay  ---?

Sincerely,

Doak C. Cox

cc: R. E. Marland
    S. Goshi