THE ASSISTANT SECRETARY OF COMMERCE
Washington, D.C. 20230

January 24, 1973

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Mr. Daniel R. Muller
Assistant Director for Environmental
Projects
Directorate of Licensing
Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Muller:

The draft environmental impact statement for Diablo Canyon Reactor Units 1 and 2 which accompanied your letter of December 12, 1972, has been received by the Department of Commerce for review and comment.

The Department of Commerce has reviewed the draft environmental statement and has the following comments to offer for your consideration.

Pages 3-17 - Figure 3.8 is a graphical representation of the high and low surface temperatures recorded in Diablo Cove in 1968. It is unclear from the graph or the text exactly what the highs and lows represent. If the highs and lows are diurnal temperature fluctuations, this fact should be clearly indicated.

Pages 5-21, Paragraph 2 - The statement is made in the section on Effects of Temperature that "the cooling water discharge from Units 1 and 2 at Diablo Canyon can be expected to raise the surface water temperature 10° F above ambient over an area of 7.4 acres." However, according to information provided in paragraphs 3 and 4 on page 3-22, the figure 7.4 acres represents the revised estimate of the portion of Diablo Cove to be enclosed by the 10° F isotherm. If this is, in fact, the case then the temperature of much of the 7.4 acres will be raised considerably more than 10° F above ambient for the following reasons:

Only at the perimeter of the 10° F isotherm will the ambient temperature be elevated just 10° F. At any point within the 10° F isothermal boundary the ambient temperature will range from 20° F above ambient to 10° F above ambient depending on the distance from the original point of discharge, which is itself 20° F above ambient.

673

The same situation may also be applied to the 40° F and 2° F isotherms. Within the 4° F isotherm, which is predicted to enclose 92 acres of surface water, temperatures will range from 10° F above ambient to 4° F above ambient. This should be clarified in the final environmental statement.

Pages 5-21, Paragraph 3 - Based on the isothermal surface areas predicted in paragraph 2 of pages 5-21, and on the maximum ambient surface temperature of 63.5° F for Diablo Cove, the statement concludes that "Therefore the water temperature at the point of discharge may become 83.5° F during normal operation. Another 7.4 acres may be heated to 73.5° F, and from 90 to 100 acres will be elevated to 67.5° F."

These predictions are evidently based on surface water temperatures at the individual 10° F and 4° F isothermal boundaries. Based on our comments above, the paragraph should be revised to indicate that the water temperature at the point of discharge may become 83.5° F during normal operation, that another 7.4 acres may have temperatures ranging from 83.5° F to a low of 73.5° F, and that from 90 to 100 acres may have temperatures from 73.5° F to a low of 67.5° F.

If the figures we suggest are correct, then all assessments of thermal impacts on the aquatic environment must be reevaluated. On the other hand, if the Staff concludes that the assessments presented in the draft environmental statement remain valid, then an explanation in support of this conclusion should be presented.

Page 5-27, Paragraph 1 - The phytoplankton doubling rates presented are taken from data collected off La Jolla in Southern California during the spring and summer months. Although no better information may be available, we question the applicability of the data to the situation at Diablo Cove. The surface waters off La Jolla are generally several degrees Fahrenheit warmer than those found in Diablo Cove at any given time, and it might be suspected that phytoplankton doubling rates would be increased accordingly. A statement should be made whether the phytoplankton doubling rates would be expected to be significantly different at the two locations.

Page 6-12 - Table 6.2 omits aquatic sediments from the list of samples to be analyzed for radioactivity. Sediments within 500 feet of the effluent outfall and at two other locations should be sampled and a complete description of the species to be analyzed and the sampling locations included in the final environmental statement.

We conclude from the discussion on pages 3-33 and 3-34 and table 3.6 that the major portion of gaseous vent release to the open atmosphere during normal operation of one plant is as follows:

1000 Curies Xe-133, once per week
1500 Curies Xe-133, continuously
970 Curies Kr-85, 45 days holdup

Without more precise information on the duration and time (night or day) of release involved in the containment purge and in the waste gas processing system and the number of storage tanks used, we cannot judge whether the annual relative concentration values listed in table 5.27 are appropriate. For example, a containment purge, one hour per week and a gas storage tank release over a 10-hour period, assuming 2 tanks with 45-day hold-up capacity, would be a total release period of about 132 hours per year. The values listed in table 5.27 would be inappropriate in such a case.

For the accidental release as discussed on page 7-4 the assumptions should be stated specifically rather than by reference to proposed Annex to Appendix D, 10 CFR 50.

We have noted in the appendices the commentary by the Air Resources Laboratories of NOAA with respect to dispersion conditions under Pasquill Categories C, D, and F. We have also noted that the applicant's program includes meteorological measurements from a 250 foot tower near the plant location and from a 100 foot tower on top of a 914 foot hill on the site and similar measurements at 4 other locations.

Dispersion characteristics of accidental radioactive releases under stable conditions have been commented on above however, we take note of the location of the site on a spit due west of U. S. Route 101 and the Los Padres National Forest. We are somewhat concerned that with all the meteorological data available to the applicant, that some sort of study, either deterministic or statistical, has not been made with regard to the possible increased fogging or production of mist or light rain during marine inversion conditions.

The marine inversion is particularly intense in the area of the site during the fall and early winter. At this time, there is a relatively high frequency of low level winds from the northwest. Therefore, without going into laborious

computations, one can surmise that the mixing of the warm moist air discharged from the plant at a temperature of 20° F above ambient with the marine layer (which normally extends 1 to 1.5 kilometers) can be advected southeastward with a potential for increased fogging and/or light precipitation over a heavily traveled roadway(U. S. 101). It appears to us that the impact of this phenomenon can be simulated to some extent.

The Arkansas Nuclear One draft environmental impact statement recently reviewed contained a computer study of the impact of fogging from a once through cooling system. We feel that the simulation work done by the Arkansas applicant should be viewed as a precedent for other draft environmental impact statements where fogging or other important weather modification situations have a potential for impact on the environment.

We hope these comments will be of assistance to you in the preparation of the final statement.

Sincerely,

Sidney R. Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs