

Comments on
Pacific Gas and Electric Company
Application to Construct and Operate a Nuclear Reactor at Bodega Bay, California

Prepared by
Environmental Meteorological Research Project
Office of Meteorological Research
U.S. Weather Bureau

February 14, 1963

The emphasis in this report with regard to the release of fission products to the free atmosphere is on complete containment (see page VII-1) and on a controlled release to the atmosphere via a stack. Assuming that the burden of proof on containment is now placed on evaluating the engineering and operating provisions that lead to total containment the role of the environment becomes a secondary consideration namely, that of evaluating and establishing permissible stack emission limits. Furthermore, routine radioactive emissions are expected to be only a small fraction of the permissible release rate and as a consequence the radiological effects of the maximum credible operating accident and the design basis refueling accident are the controlling factors. With the assumption that the stack discharge rates given in Fig. VII-5 are reasonable, we are in agreement with the computed maximum dose rates under lapse conditions. However, under inversion conditions there is a question in using a plume height above the ground of 200 ft. at 3 miles inland from the site. Hills at these distances essentially form a barrier of about 600 ft. in height. The behavior of plumes in the vicinity of elevated ground is not well understood, especially under such conditions as the West Coast marine inversion. A recalculation of dose rates for the stable case using zero stack height instead of 200 ft. gives dose rates 20 times higher. Admittedly, this is probably a pessimistic approach, but the problem needs further study. It is hoped that the studies to be conducted at Humboldt Bay on plume behavior in the vicinity of elevated ground will include marine inversion conditions.

The on-site meteorological measurement program which is to start in the fall will be particularly useful in determining wind versus stability statistics. It might prove useful to have an additional temperature measurement at sea level as well as the three planned levels in the tower, whose base appears to be about 60 ft. above sea level.

In summary, as is the case in Humboldt Bay, the behavior of an elevated plume in the vicinity of higher terrain under marine inversion conditions needs study in order to determine permissible stack emission limits.

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