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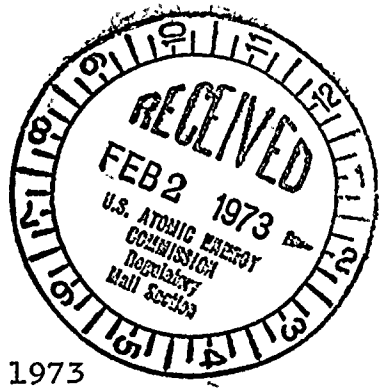

January 26, 1973

50-275
50-323

Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Reference: Comments on Draft Environmental Statement
Dockets #50275 and #50323

Gentlemen:

The enclosed comments are directed to some of the more basic shortcomings in the Diablo installation. The comments are not inclusive in that time did not permit discussion of some areas which seem to need more muscle.

As a senior member of the American Society for Quality Control, with extensive experience in this field, and as the president of a small industrial manufacturing company, it is almost unbelievable that your report doesn't delve further into reliability and quality assurance. I am left with the impression that priorities may be mixed.

Very truly yours,

K. B. Kilbourne

KK:ho

Encl.

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COMMENTS ON THE DRAFT ENVIRONMENTAL STATEMENT BY THE DIRECTORATE OF LICENSING, UNITED STATES ATOMIC ENERGY COMMISSION

DIABLO CANYON UNITS #1 AND #2

PACIFIC GAS AND ELECTRIC COMPANY

Submitted to:

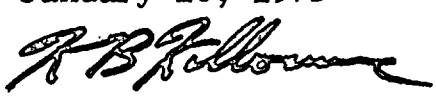
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

Docket Nos. 50275 and 50-323

Submitted by:

K. B. Kilbourne

January 26, 1973



CONTENTS

GENERAL

These comments on the draft environmental statement are concerned with the following:

1. Are the definitions of normal plant operation reasonable?
2. Are the possibilities of plant failures properly considered?

NORMAL PLANT OPERATIONS

The extent to which the power reactor conforms to the normal operations defined in the draft environmental statement will determine adverse environmental effects. In the short term, adverse effects may be mitigated. However, the long term, cumulative effects of "acceptable" levels of radioactive and other contamination that the plant will release are not well known. Anything other than trivial departure from the defined operating conditions could be serious and destructive in the short term, or the long term, or both.

The plant design, equipment and proposed controls are not sufficiently detailed in the draft report so that they may be evaluated. Consequently, these comments are not intended to judge whether the plant is safe or unsafe. At the same time, it should be noted that the limited description of the primary and secondary cooling systems, the proposed effluent discharge system, and the environmental evaluation of effects can in no way be considered confidence builders.

Primary and Secondary Cooling Systems The draft leads to the following conclusions:

1. There is no redundant cooling for the primary system, and presumably such is impossible, not feasible or uneconomic.

2. While the primary and secondary cooling systems are independent, radioactive and other contamination is possible between them. No radioactive or chemical inspection is provided from the turbine condenser.

3. The primary cooling liquid, after processing through the radioactive waste system, dumps into the secondary cooling system discharge line. There is no indication how this operates under emergency conditions.

4. Radiation monitoring is not operationally defined in the draft statement. It is not apparent whether radiation monitoring is informational sampling or provides to shut-down discrepant effluent flow, and in such cases, how rapidly the system will respond.

5. Chemical sampling of effluent will be after the fact (after discharge) and not from the discharge conduit, or at the radiation monitor stations.

Effluent Discharge System Outside of control of effluent from the turbine condenser, the steam generator blowdown tank, the boron recycle system and the waste disposal system, the environmental impact will depend upon the heat level of the discharge and various assumptions as to the characteristics of the discharge plume.

Draft report data and its interpretation on the discharge plume is unconvincing, theoretical and speculative. The size and shape of the cove, the average depth of sixteen (16) feet, the discharge velocity and turbulence and the discharge volume (five acre feet per minute) makes the data improbable. Other variables as wave and tidal action, the contour of the cove bottom, offshore and eddy currents, proximity to the South cove inlet, and variation in weather conditions raise real doubts that the discharge plume will in any respect approximate the geometrical form in the draft.

The discharge plume is more likely to encompass the entire cove and to tilt southerly to South cove most of the time. The temperature rise and level of contamination will necessarily, then, be a function of the daily temperature of the water in the cove, the temperature and volume of the discharge, the rate of change of water in the cove, and the heat dissipation to the ocean and to the atmosphere.

To assume that no substantial part of the plume will recirculate through South cove, and thereby changing temperature and contamination estimates, is sheer optimism.

The draft claims a two-fold dilution in 8 acres of water with an average depth of less than 16 feet. Using 16 feet for depth, eight acres is 128 acre feet of seawater. The discharge from two power reactors will equal 128 acre feet in twenty four minutes. While the dilution may be two-fold

the first hour, it will be substantially less for succeeding hours...unless it can be established that a hundred (100) percent change of water occurs in the eight (8) acres every half hour...a very unlikely occurence.

Offshore Discharge Line An offshore discharge line into the ocean rather than discharging into the cove was lightly considered and rejected. The arguments against appeared to be basically cost and not environmental. Loss of kelp and abalone and other adverse effects on the marine biota were accepted. Evaluation of the discharge plume data was uncritical or not accomplished, and comparisons beteen the proposed plant and one with an offshore discharge are not valid except for cost differences.

Environmental Effects The actual characteristic of the discharge plume and the percentage of effluent re-circulated through the secondary cooling system will lead to a significantly higher water temperature and more contamination in Diablo cove than the draft report indicates. Marine biota will disappear from the cove, except for a few hardy survivors and some migrants that can stand the cold water between their home and this heated paradise. Requiring an offshore discharge line would eliminate these adverse effects.

CONSIDERATION OF PLANT FAILURES

Probability of Failure Section 7 of the draft

statement discusses environmental impact of postulated accidents (failures). However, it gives no information as to what is meant by "probability of occurrence." Reference is made to "low" and "high" occurrence rates without explaining what "low" and "high" is in numerical data and how it was obtained. Lacking such data, it must be assumed that "probability of occurrence" refers to engineering value judgements and not to statistically determined probabilities with appropriate confidence limits. As such, the conclusions of Section 7 may or may not be correct and have very limited value in evaluating the environmental impact of the reactor plant.

From a system standpoint there may be no available meaningful and reliable data which can be used to predict probability of failure. Treating all operating water cooled power reactors as a universe from which to draw probability data, or citing a no failure record on this basis, would be a specious and questionable procedure. In any case, with 28 power reactors in operation since the first went on stream in New Jersey in 1963, 52 under construction and some 70 on order, there simply are not enough facilities (too small a sample) upon which to establish a valid probability of failure from a system standpoint.

As the oil companies discovered with their platforms (a simple, safe technology compared to reactor plants) it is unrealistic and incredible to predict no failures

where men, materials and machines are involved. The probability of minor and major failures exists, but objective measure of the level of probability does not. It can be assumed, however, that potential failure will increase with the number of plants constructed and their years of operation. A major failure in a water cooled reactor is more certain than uncertain, and the questions are mostly where, when and the consequences.

The draft statement does not deal adequately with the matter of failure, in particular the consequences and appropriate corrective action. A similar glaring omission is the lack of any description of the quality assurance program for operation of the plant.

Safety Considerations Section 7 of the draft refers to the staff's Safety Evaluations dated January 23, 1968 and November 18, 1969 and eight categories ranging from trivial to major postulated accidents.

No mention is made, or discussion of, AEC publication, "Water Reactor Safety Program Plan," (1970), which outlines 139 safety questions with water cooled power reactors, 44 of which are considered "very urgent, key problem areas, the solution of which would clearly have great impact, either directly or indirectly, on a major critical aspect of reactor safety."

Many of these 139 safety questions, including the 44 urgent and critical safety questions, remain unsolved. This report with appropriate response should be

incoporated in the environmental statement.

Table 7.2, Summary of Radiological Consequences of Postulated Accidents, lists under Class 8.1 loss-of-coolant accidents with an estimated dose to population in 50-mile radius of 120 man-rems. The draft states, "The probability of occurrence of large Class 8 accidents is very small."

The environmental statement should include a statement of the consequences and the corrective action for Class 8 accidents, particularly when it is considered that other doses listed in the table range from 0.1 to 12 man-rems.

CONCLUSION

The draft environmental statement is not adequate to properly evaluate the environmental impact of Diablo Canyon power reactors #1 and #2.

The definitions of normal plant operation are not reasonable. The possibilities of plant failures have not been sufficiently considered.