

Reg. Cent.

9/14/78

September 14, 1978

Elizabeth S. Bowers, Esq., Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. William E. Martin
Senior Ecologist
Battelle Memorial Institute
Columbus, Ohio 43201

Mr. Glenn O. Bright
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

In the Matter of
Pacific Gas and Electric Company
(Diablo Canyon Nuclear Power Plant, Units Nos. 1 & 2)
Docket Nos. 50-275 O.L.
50-323 O.L.

Dear Members of the Board:

The enclosure is being sent to all boards involved in proceedings for coastal sites to inform them of an issue concerning calculation of relative concentration (X/Q) values. As indicated in the enclosure, it is usually possible to calculate higher (worse) X/Q values for coastal sites by considering all meteorology data rather than only considering the data related to onshore flow conditions.

This question involves the short-term (accident) diffusion estimates calculated at the site boundary. The X/Q value that has been used for Diablo Canyon for these conditions is 5.3×10^{-4} seconds per cubic meter (sec/m^3) as discussed in Section 2.3.4 of the Safety Evaluation Report (SER). This value was selected before complete meteorology data were available for the site and was thought to be conservative at that time. Since then, the data that have been gathered have confirmed that the initially selected value is conservative as discussed in Section 2.3.6 of Supplement 2 to the SER, (As an illustration, in Appendix B to Supplement 2 our consultant, NOAA, calculated 1.8×10^{-4} sec/m^3 based on the data).

Because of the conservatism of the original number in relation to the actual data, the matter discussed in the enclosure has no significance for Diablo Canyon. We have examined the effect of this matter using the Diablo Canyon data and none of our standard models, with or without consideration of offshore flow conditions, gives a value as high as the original value of 5.3×10^{-4} seconds per cubic meter. Thus, even if it were decided to change our previous licensing policy and to consider

OFFICE >						
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DATE >						

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
545 EAST 58TH STREET
CHICAGO, ILLINOIS 60637

PROFESSOR [Name]
[Address]
[City, State, Zip]

Dear Professor [Name]:
I am writing to you regarding [Topic].
I have been thinking about [Topic] and
would like to discuss it with you.

I have been reading your paper on [Topic] and
found it very interesting. I am particularly
interested in [Topic]. I would like to
know more about [Topic].

I am currently working on [Topic] and
would like to know if you have any
advice. I am also interested in [Topic].
I would like to know if you have any
papers on [Topic].

I am looking forward to hearing from you.
Thank you for your time and attention.
Sincerely,
[Name]

[Name]
[Address]
[City, State, Zip]

all flow conditions in calculating X/Q values for coastal sites, there would be no effect on licensing decisions for Diablo Canyon.

Sincerely,

Richard J. Goddard
Counsel for NRC Staff

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Reg. Cent., LPDR
D.Vassallo, H.Smith
D.Allison, J.Jackson

Enclosure as Stated

cc (w/encl.):

Philip A. Crane, Jr., Esq.
Mrs. Elizabeth Apfelberg
Mrs. Raye Fleming
Mr. Frederick Eissler
Mrs. Sandra A. Silver
Mr. Gordon Silver
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John Marrs
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Atomic Safety & Licensing Board Panel
Atomic Safety & Licensing Appeal Panel
Docketing and Service Section

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SURNAME	RGoddard:ns					
DATE	9/14/78					

THE UNITED STATES OF AMERICA

DEPARTMENT OF JUSTICE

OFFICE OF THE ATTORNEY GENERAL

WASHINGTON, D.C.

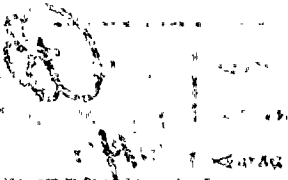
SEPTEMBER 14, 1954

Dear Sir:

I have your letter of September 13, 1954, regarding the above captioned matter. In reply to inform you that the Bureau is currently reviewing the information submitted to it by your office and will advise you as to the results of its investigation.

Very truly yours,
ATTORNEY GENERAL

Very truly yours,
ATTORNEY GENERAL



DIFFERENCES IN PROCEDURES FOR ESTIMATING ATMOSPHERIC
DISPERSION CONDITIONS AT INLAND AND COASTAL SITES

The basic methodology for evaluating atmospheric dispersion conditions to be used in assessing the consequences of design basis accidents is described in Section 2.3.4 of the Standard Review Plan. Briefly, the methodology for both inland and coastal sites involves the development of a probability distribution of relative concentration (X/Q) versus frequency of occurrence at a minimum exclusion boundary distance, from which a X/Q value is selected which would not be equalled or exceeded more than 5% of the time. X/Q values are calculated at the nearest exclusion area boundary for dispersion conditions which are representative of the site in general. These values are determined by considering pairs of wind speed and stability conditions independent of wind direction.

There is a difference between coastal sites and inland sites in the selection of the meteorological data base used for the calculation of X/Q values. The X/Q values calculated for inland sites are based on consideration of dispersion conditions for all wind directions. At coastal sites, only the dispersion conditions when the wind is blowing onshore have been considered. The consideration of only onshore flow conditions as a basis for calculation of X/Q values at coastal sites has been routinely described in safety evaluation reports, although the significance of the change in assumptions with respect to the magnitude of the X/Q value selected and the likelihood of this X/Q value has not been described.

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Consideration of only onshore flow conditions effectively limits the probability distribution of X/Q values to between about 50% to 80% of the total time, depending on the fraction of time the wind blows onshore. The "5% X/Q" value at coastal sites has been selected from this limited probability distribution. This value represents the dispersion condition equalled or exceeded 5% of the time at the minimum exclusion area boundary distance onshore. This procedure results in lower calculated X/Q for coastal sites than for inland sites, inasmuch as a significant fraction of the data representative of poor diffusion conditions is effectively eliminated from consideration.

~~...to be presently considered...~~

In Summary,

In our calculation of atmospheric dispersion conditions there are differences in assumptions used for computing short term accident dispersion conditions at coastal and inland sites. These differences result in generally lower (up to a factor of about three) calculated exclusion area boundary X/Q values at coastal sites than at inland sites, which have an effect on decisions with respect to the requirements for accident consequence mitigation equipment and systems.

... sites. It is likely that adoption of this model will result in a general increase in short term accident exclusion area boundary X/Q values for coastal sites..

