#3 Embarcadero Center
Twenty-Third Floor
San Francisco, CA 94111
August 23, 1982

William H. Cormier
Office of Administrative Vice Chancellor
University of California
405 Hilgard Avenue
Los Angeles, CA 90024

Dear Mr. Cormier,

Enclosed please find the additional questions regarding the "Fuel Self-Protection Calculations" included as Exhibit A to the University's Response to CBG's Interrogatories on Contention XX, pursuant to our agreement of August 19.

As we agreed, please provide us your response at the earliest possible time.

I will contact you on Wednesday, August 25, to determine the status of this process.

I appreciate your cooperation in resolving these matters.

Very truly yours,

[signature]

for
John H. Bay

JHB:sa
(dictated but not read
   by JHB)

Enclosure

cc: Service List

DS03

Questions and Clarification as to "Fuel Self Protection
Calculation", by Neill Ostrander, dated July 1982("Exhibit A")

A. As to the equation in sentence 1:

   (1) What is the source of the equation?

      (a) If the source is a book, article, report or other document,
give its title, author, publisher, date, page number, and
other appropriate identifying information and indicate why
you believe it is the appropriate equation to use.

      (b) If derived by your staff or personnel, how was it derived
and what assumptions were used in its derivation?

   (2) What is the source of the numerical exponential "-1.2", and why
is it employed in said equation?

      (a) If the source of the exponential is a book, article, report
or other document, give its title, author, publisher, date,
page number, and other appropriate identifying information
and indicate why it is appropriate to use it.

      (b) If derived by your staff or personnel, how was it derived
and what assumptions were used in its derivation?

   (3) What is the value which was used for the constant "A" in the
equation, and what are the units in which it is expressed, as
used to obtain the results in paragraph 3?

      (a) If the source of the constant is a document, please identify
the document as above, and indicate why you think it is
the appropriate value to use.

      (b) If derived, how was it derived, and what assumptions were
used in its derivation?

      (c) Was the constant obtained by actual measurement or by
calculation? What approximations and assumptions are made
in so obtaining the constant?

B. As to part 3a of the calculation:

Was the periodic component of 200kW energy generation every seven
days assumed to be regular with time or to be variable with time?
(i.e., did you assume 200kWh output on day 1, 200kWh on day 8, 200kWh
on day 15, etc.; or did you assume, e.g. 100kWh on day 1, 75kWh on
day 5, 130kWh on day 16, etc., which would average out to be 200kWh
each week?)

C. As to the "random, smoothed, average power level of 5.0 MWh per
year" identified in part 3b of the calculation:

   (1) Precisely what is meant by "random, smoothed, average"?

      (a) Is the power function $P(\tau)$ implied by this sentence a

constant power level of 5MWh per year (i.e., was it "straightlined"?) or was some randomly generated function used for the calculation?

If the power function $P(\tau)$ was not meant by this sentence to be a constant in time, then describe the function used and the means to generate it. Include in the description of the function used in addition to the mean power level, the constants or parameters and their values and units which indicate the temporal characteristics, that is, the rate of change of the function with time, and those that express the amplitude variability and deviation from the average power level.

    (b) How was the random power level "smoothed"? Please provide the functions used to smooth it.

D. By the reactor being "shut down", as used in paragraph 3, do you mean zero power generation from both the periodic impulse component and the random smooth component?

    (1) Are there any assumptions used in the calculation in question which would make the equation invalid for downtimes of less than one week? If so, please identify said assumptions.

    (2) Please provide dose rate estimates for 1 day and 3 days after shut down or for similar T values of less than one week.

E. If the calculation was computer assisted, please provide the computer program and printouts.

    (1) For those portions of the calculation not computer assisted, please show the actual calculations that resulted in the dose rate conclusions summarized in the table at the bottom of page 1 of "Exhibit A".

    (2) Please provide all other calculations or computer runs, if any, from January 1981 to the present that were conducted to, or that could be used to, estimate operating conditions necessary to maintain the fuel at 100 rem/hr.