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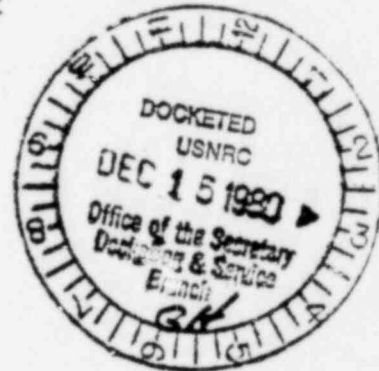


SANTA BARBARA • SANTA CRUZ

OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
THE CENTER FOR THE HEALTH SCIENCES
LOS ANGELES, CALIFORNIA 90024

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December 8, 1980
C1867, 1712



Dr. John Ahearne
Acting Chairperson
Nuclear Regulatory Commission
1717 H Street NW
Washington, D.C. 20555

Dear Commissioner Ahearne:

On December 2, 1980, UCLA received a copy of a letter transmitted to you by David Hirsch representing the Committee to Bridge the Gap. That letter, dated November 4, 1980, alleges a gross discrepancy between an exposure (a) of 1.4 mR per year estimated in connection with a Director's Decision (80-30) and (b) of 90 mR per year estimated by UCLA in connection with an Application for renewal of the UCLA Research Reactor License R-71.

Firstly, Mr. Hirsch has taken a quotation out of context from the UCLA Application. The full paragraph containing that quotation, starts at the bottom of page V/3-10 of the Application and reads:

A thermoluminescent Dosimeter program undertaken over a two year period in 1976 and 1977, indicated γ -dose levels of 18 to 50 mRem/yr. on the roof areas. The higher ranges were closely related to concrete proximity and unrelated to direction or distance from the reactor room ventilation stack. For dosimeters more isolated from concrete, values near the stack ranged from 18 to 24 mRem/yr. Assuming that these are reflecting the γ radiation from argon-41, and adjusting for the ratio of maximum authorized usage to average actual usage in 1976-7, it is estimated that roof top exposures on the order of 90mRem/yr. (at 100% occupancy) might be expected at the full authorized operating level.

In their application, UCLA expresses both implicit and explicit reservations concerning the validity of the measurements and the extrapolation to full authorized operating level. Note that the 90 mRem/year was not a measured value as is implied by Mr. Hirsch's letter.

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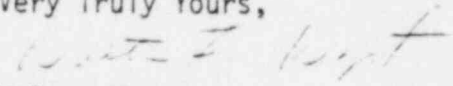
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More importantly, UCLA believes that concrete is a significant source of low level radiation and rejected all TLD data that were taken with dosimeters mounted directly on concrete. Other dosimeters, at varying distances from concrete and in varying geometric arrangements relative to the concrete, were not immune to the radiation from concrete.

Thus, virtually all of the TLD data are too high by an unknown factor and there is no known way to correct this effect. Further, the radiation from concrete is independent of the operating level of the reactor, and hence the error is exaggerated when multiplied by the factor of three used to adjust from the 14.5 megawatt-year level of the test period to the 44 megawatt-year of the License Application. In brief, UCLA expresses no confidence in either the TLD data or its extrapolation.

Secondly, UCLA has reviewed the calculational procedures presented in the Appendix to the Director's Decision (80-30). UCLA contributed to, understands, and supports those calculations in principle. UCLA's contribution to that Appendix was limited to providing the meteorological model and some example calculations relating the model to experimental data. This contribution arose as a result of a question posed by the NRC staff, and was carried to the point of estimating roof top exposures. Those example calculations used a 100% frequency for the prevailing wind condition, 100% occupancy of the roof top area, and exposures calculated on the basis of immersion in a semi-infinite sphere. UCLA endorses the 30% wind direction factor and the concept of the finite source factor; but was unaware of the AERE HP/R 1452 reference relevant to the latter factor. UCLA does not endorse the 100% occupancy factor, but will accept that choice as prudently conservative. Incorporation of those factors would independently lead UCLA to essentially the same radiation level (1.5 mr/yr) as that shown (1.4 mr/yr) in the Appendix to the Director's Decision (80-30).

Very Truly Yours,


Walter Wegst
Director, Research and Occupational
Safety

WW:djy

cc: Commissioners:
Bradford
Gilinsky
Hendrie
N. Ostrander
D. Hirsch