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FROM:

Nancy Dennis
Occupational Health Stds Branch (35970)

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Subject:

Letter dated April 28,
1980 to Dr Craig
Yoder



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 28 1980

Dr. Craig Yoder
Battelle Pacific Northwest Laboratory
Richland, Washington

Dear Dr. Yoder:

As you are aware, the NRC has recently published for comment an advance notice of rulemaking on the subject of certification of personnel dosimetry processors. The advance notice clearly states the Government's commitment to introduce regulatory changes to 10 CFR Part 20 intended to improve the accuracy and consistency of dosimetry data used in making occupational dose assessments. The advance notice suggests the possibility that the proposed rule will require that dose estimates will only be acceptable to the NRC if performed by certified dosimetry processors. The revised Health Physics Society Standards Committee (HPSSC) standard will be recommended to the Commission, possibly in modified form, as the basis for the certification program.

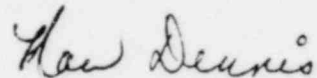
An item of major concern to the NRC staff is the adoption of the appropriate conversion factors which relate low-energy photon exposure (R) to dose equivalent index (rem). The NRC in 1976, contracted with Battelle's Pacific Northwest Laboratories to confirm experimentally the DEI conversion factors presented in Table 2 of the draft standard for both shallow and deep depths in tissue equivalent material. February 6, 1980, a meeting was held in Washington at the Office of Standards Development to resolve the differences between those measurements made at Battelle and the conversion factors, C_x values, which were formulated by the HPSSC working group. Dr. Ehrlich, NBS, summarized new research from Kramer at GSF⁽¹⁾ and Hohlfield at PTB⁽²⁾ which has prompted the HPSSC to revise the C_x values used in the draft standard. Indeed, the German data were accepted as the basis for revising the C_x values in the Standard which has been submitted to the HPSSC for final approval. Significant differences still exist between your data, the draft standard, and the revised standard values, especially in the 16, 78 and 100 keV measurements. This letter is to confirm your offer to repeat essential measurements and thus to confirm the experimentally derived conversion factors which appear in NUREG/CR-1057.

¹R. Kramer, ERMITTLUNG VON KONVERSIONSFAKTOREN ZWISCHEN KORPERDOSEN UND RELEVANTEN STRAHLUNGSKENNGROSSEN BEI EXTERNER RONTGENUND GAMMA-BESTRAHLUNG, Gesellschaft Fur Strahlen, Und Umweltforschung MBH Institut fur Strahlenschutz, Munchen-Neuherberg, Germany, February 1979.

²Hohlfield, PTB, personal communication with Dr. Ehrlich

It is essential that the data base for these conversion factors, as used in NRC regulations, be sound. The values chosen will influence the magnitude of assigned occupational dose measurements for some workers and could thus have considerable impact. In the near future the staff will recommend to the Commission proposed amendments to 10 CFR Part 20; in the development of the proposed amendments we will have to make a decision as to whether to recommend the C_x values in the revised standard or the values determined at Battelle. In making this decision we would like to take full advantage of your views as to why the values published by Battelle should be used, rather than those appearing in the revised HPSSC standard. Since you recently agreed to provide a justification of this nature, we are requesting it at this time.

Sincerely,



Nancy Dennis
Occupational Health Standards Branch
Office of Standards Development