L&R:IE:MBH(2-756-16)

APR 4 1963

University of Arizona
Tucson, Arizona

Attention: Dr. Lynn E. Weaver

Gentlemen:

Enclosed is Amendment Number 7 to Byproduct Material License Number 2-756-16 issued in response to your March 1, 1963 letter.

We have not permitted burial of byproduct material as requested in your March 1, 1963 letter. The proposed burial did not contain a justification for such an exception to our regulations and information pursuant to 10 CFR 20.302 which would permit us to evaluate the relative hazard of such burials as opposed to burials presently permitted by 10 CFR 20.304. We will consider this request upon receipt of your justification and supporting hazards evaluation.

Your "Radiation Safety Manual" dated February, 1963, has not been specifically referenced in Condition 16 of the enclosed license since you did not specify what function you wished the "Manual" to serve in your byproduct material program. Please clarify your intent and designate the previously submitted document(s), if any, which this "Manual" will replace.

We call your attention to the following items in the "Manual" referenced by page and paragraph designation:

5-E-1 - It appears that you have miss-referenced paragraph 20.303 of 10 CFR 20 as permitting disposal of gaseous waste by the sanitary sewer. Gaseous effluents should be limited to the concentrations in Section 20.106.

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6-III A 1. d) It appears that "neutron" should be deleted in the last sentence.

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7-b) Although the term "rep" is used in health physics work, it is being replaced by "rad" (adopted by the ICRP). The "rad" is defined as the amount of energy imparted to matter by ionizing particles per unit mass of irradiated material at the place of interest (1 "rad" represents an absorbed dose of 100 ergs/gm of material). The "rad", therefore, may be applied to all ionizing radiations and to all materials. (References clearly defining "rad" and its applicability as the unit of absorbed dose are National Bureau of Standards Handbooks 62 and 84.)

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7-d) "radio" = ratio

7 - 4 "Rem" has not been clearly defined in this manual as REE x absorbed dose ("Rep" or "Rad"); therefore, the measurement of contamination levels in "Rem" may be difficult for the uninitiated individual to make.

14 - Table II Your categorizing of byproduct material in relative hazard groups as shown may not depict true hazard since the table does not apparently consider such factors as the types of compounds in which the isotopes appear, the specific activity, the volatility, the complexity of procedures involved; but only considers relative doses to critical organs and tissue if the isotope should enter the body. It may be of interest to you to review such a hazards grouping of radioisotope recently included in the International Atomic Energy Agency booklet "Safe Handling of Radioisotopes, No. 1 of the "Safety Series." (available for $2.00 through the National Agency for International Publications, Inc., 801 Third Avenue, New York 22, New York).

Very truly yours,

John E. Bowyer
Isotopes Branch
Division of Licensing
and Regulation

Enclosures
1. Amend No. 7
2. 10 CFR 20
3. Form AEC 313

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