THE UNIVERSITY OF SOUTH DAKOTA
VERMILLION, SOUTH DAKOTA 57069
SCHOOL OF MEDICINE
DEPARTMENT OF MICROBIOLOGY
(605) 677-5253

"... providing medical education, service and research for South Dakotans"

March 29, 1985

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MS-16

NMSS:CLC
Mail Control No. 60275

U.S. Nuclear Regulatory Commission
Region IV
Parkway Central Plaza Building
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Attn: C.L. Cain, Nuclear Materials Safety Section

Gentlemen:

The enclosed information is our response to your request for more information and/or alterations in our application for renewal of byproducts license number 40-02331-19.

Sincerely,

Paul F. Smith

Paul F. Smith, Ph.D.
Radiation Safety Officer

PFS/ns
Enclosures

MS-16

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40-02331-19 PDR

#60275

1. Criteria for review of credentials and approval of users of radioisotopes by Radiation Safety Officer

The general guidelines specified in 10 CFR Part 33.15 (b) will apply. Byproduct material will be used only by, or under the direct supervision of, individuals who have received:

(a) A college degree at the bachelor's level, or equivalent training and experience in the physical, biological or engineering sciences.

(b) At least 40 hours of training and experience, in the safe handling of radioactive materials, and in the characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation, and biological hazards of exposure to radiation appropriate to the type and forms of byproduct material to be used.

(c) Instruction in the administrative controls and provisions relating to procurement of byproduct material, procedures, record keeping, material control and accounting, and management review necessary to assure safe operations as defined in this license.

Each potential user will submit to the RSO the following information on the application form when requesting approval for use of radioisotopes.

The completed form will be submitted to the RSO who will evaluate each application to determine if the individual meets the general guidelines, specified in 10 CFR Part 33.15 (b). Based upon training and experience of the applicant the RSO will authorize use of specific isotopes and maximum amounts for each user. The applicant will be notified of approval for such use in writing. Records of applications and their disposition will be maintained by the RSO.

Administrative approval for authority of Radiation Safety Officer

The Radiation Safety Officer (Paul F. Smith, Ph.D., Department of Microbiology) is authorized to review credentials and approve users of byproduct radioactive materials as described in section 1 of this letter. This authorization extends to all schools, colleges and departments of the University of South Dakota sited on the Vermillion, S.D. campus. Further, the Radiation Safety Officer is given full responsibility for the University's radiation safety program.

Joseph M. McFadden
President, University of South Dakota

APPLICATION FOR AUTHORITY TO USE BYPRODUCT RADIOACTIVE MATERIALS

Submit completed form to:
Radiation Safety Officer - University of South Dakota

NAME
TITLE
DEPARTMENT
OFFICER NUMBER

1. TYPE OF TRAINING	WHERE TRAINED	DURATION	ON THE JOB	FORMAL COURSE
a. Principles & practices of radiation protection				
b. Radioactivity measurement standardization and monitoring techniques and intsruments				
c. Mathematics & calculations basic to the use and measurement of radioactivity				
d. Biological effects of radiation				

2. EXPERIENCE WITH RADIATION

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

_____
Signature of applicant

2. Calibration of survey instruments

Survey instruments will be calibrated semiannually through a contract with ICN Chemical and Radioisotopes Division, Calibrations Dept., 2727 Campus Drive, Irvine, CA 92715.

3. All sealed sources will be leak tested semiannually. For the ^{60}Co calibration source, appropriate areas will be wiped with moistened cotton swabs which will in turn be counted in a liquid scintillation counter. The following reference standards are used:

^{14}C	0.1 µCi	Packard Instrument
^{3}H	0.2 µCi	Packard Instrument
^{36}Cl	50,200 dpm	Packard Instrument

The reference standard for the neutron source is a tracerlab alpha radiation standard (R-15) consisting of thorium planchet (2100 dpm)

4. Substantiation of limits for releases of ^{3}H and ^{14}C into the sanitary sewage system

The following estimates of disposal have been calculated from procurement, usage and disposal data kept by users of the above radioisotopes.

Year	Isotope	Amt procured mCi	Amt used mCi	Disposal Sewage mCi	Disposal Solid mCi
1985(3 mo)	^{14}C	0.011	0.05	0.045	0.005
1984	^{14}C	1.44	0.85	0.75	0.10
1983	^{14}C	1.86	0.40	0.40	0
1982	^{14}C	0.86	0.35	0.35	0
1985(3 mo)	^{3}H	2.0	3.5	3.0	0.5
1984	^{3}H	10.93	10.5	10.0	0.5
1983	^{3}H	13.25	15.0	14.0	1.0
1982	^{3}H	46.72	8.75	8.0	0.75

Disposal to sewage system is limited to a maximum of 1mCi per day with the following days being designated for a specific department:

Mondays	Physiology/Pharmacology
Tuesdays	Biochemistry
Wednesdays	Biology
Thursdays	Microbiology
Fridays	Anatomy

Disposal of solid wastes is made in normal trash which is buried in a city landfill. The amounts listed above are disposed over a 52 week period and do not exceed permissable amounts as per 10 CFR 20.306.

5. Procedures for disposal of solids contaminated with long half-life radionuclides other than ^{3}H and ^{14}C.

All long-lived isotopes not specifically covered by 10 CFR Part 20.306 will be held in storage surrounded by lead brick until such time that the State of South Dakota enacts a compact for disposal of low-level waste. At that time disposal will proceed under legal guidelines. As a reference, the following amounts of long-lived isotopes have been procured since 1980.

^{65}Zn	7mCi
^{109}Cd	1mCi

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