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5710 Warwick Place
Chevy Chase, Md. 20015
June 6, 1980

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Michael A. Lamastra
Material Licensing Branch
Division of Fuel Cycle and
Material Safety
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Lamastra,

With reference to your letter dated April 21, 1980, I am enclosing the additional information which you requested. The control number which you assigned the application of the University of Alaska, Anchorage, is: Control No. 03267. I am sorry to have been so long in sending you this material, but I have been travelling between Alaska and Washington, D.C., for the past month.

If you need further information, please let me know. I will be at the above address until June 17th (telephone number: 654-4935). My address during the summer until August 13th will be:

Tumor Virology Laboratory
The Salk Institute
P.O. Box 85800
San Diego, California 92138

Then I will be returning to the University of Alaska, Anchorage. Thank you for your assistance.

Yours sincerely,

Kristine Mann

Kristine Mann, Ph.D.
Biology Department
University of Alaska, Anchorage

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INSPECTION AND ENFORCEMENT

Duties And Responsibilities Of The Radiation Protection Officer

The duties and responsibilities of the Radiation Protection Officer are as follows:

1. To ensure that the use of radioactive materials is by, or under the direct supervision of, individuals specifically listed on the license.
2. To ensure that all users wear personnel monitoring equipment, where appropriate, and that all users are familiar with the safety and emergency procedures prior to use of radioisotopes.
3. To ensure that the radioisotopes are properly secured against unauthorized removal at all times when not in use.
4. To perform routine inspections of all laboratories using or storing radioactive materials.
5. To keep an inventory of the radioisotopes and the quantities ordered, received, and used. The user of the radioisotope and the date and amount of radioisotope withdrawn will be kept on record sheets.
6. To keep records of the storage location of the radioisotopes, the dates of disposal and quantities of radioisotopes disposed of, the dates of routine laboratory surveys and the results of these surveys, and the dates for instrument calibration.
7. To ensure that the terms and conditions of the license are met.

Procedures And Safety Instructions For Use Of Phosphorus-32

1. Allow all shipments of ^{32}P to be opened by the Radiation Protection Officer. The can must be opened routinely with a designated can opener in the Research Laboratory. Disposable plastic gloves must be worn and must be monitored with the beta survey meter, discarding the gloves as soon as contamination is detected.
2. Store the ^{32}P in its lead container within a Plexiglass box in the Research Laboratory. Whenever possible, carry the ^{32}P in this container; when this is not possible, carry the ^{32}P at arm's length.
3. Work behind a Plexiglass shield when handling the ^{32}P in an experiment in order to keep bremsstrahlung radiation at a minimum. Use eye protection for procedures involving 10 millicuries or more of ^{32}P .
4. Wear disposable plastic gloves at all times when handling ^{32}P and monitor them frequently with the beta survey meter, discarding them immediately when contaminated in order not to contaminate other surfaces.
5. Be sure to wear a laboratory coat at all times when working with ^{32}P and monitor for contamination.
6. Wear an extremity monitor on your finger and a whole body film badge during procedures that involve 1 millicurie or more of ^{32}P .
7. Be sure that you have received instruction on the emergency and safety procedures from the Radiation Protection Officer before using ^{32}P for the first time.
8. Before using ^{32}P in a procedure for the first time, go through a dry run of the procedure in order to preclude unexpected complications. If possible, have the Radiation Protection Officer present when the ^{32}P is actually used for the first time in the new procedure.
9. A mandatory radiation survey must be done after each use of ^{32}P , either by the Radiation Protection Officer or by the user after receiving instruction from the Radiation Protection Officer.
10. Store the ^{32}P waste in an appropriate waste disposal container behind lead or Plexiglass in the designated area until it has decayed through several half-lives and is ready for disposal in the appropriate manner.

Procedures For Handling Animals Treated With ^3H or ^{14}C

1. Proper safety and housekeeping practices must be followed at all times.
2. Wear rubber gloves when handling animals contaminated with radioactive chemicals.
3. All animals treated with ^3H or ^{14}C are to be housed in an enclosed glass metabolite cage or in a metal metabolite cage which is located in a properly ventilated fume hood until it has been determined that none of the labeled isotope is excreted with expired air.
4. All cages housing treated animals must be labeled with a radiation warning sticker which indicates the isotope being used, its activity, the researcher's name and information on where he or she may be reached in an emergency.
5. All samples taken during the study must be properly labeled and stored only in receptacles designated for radioisotope use.
6. All samples of urine, feces, homogenates, and so on must be properly disposed of by diluting with water to the acceptable level and by pouring into a sink which has been designated for this use. The quantities of radioactive waste disposed of in this manner will not exceed the levels specified in the Nuclear Regulatory Commission Regulation 10 CFR 20.303.
7. Animal waste carcasses must be placed in plastic storage bags and properly labeled. The label must indicate the isotope, the approximate activity, and the investigator's name. The animal waste carcasses will then be frozen until the time of disposal by burial, according to the Nuclear Regulatory Commission Regulation 10 CFR 20.304.
8. All cages housing the animals during the course of the experiment must be thoroughly washed with large quantities of water, followed by detergent and water, and then additional quantities of rinse water.

Bioassay Program For Tritium

With respect to the use of tritium, no one will be using millicurie quantities of tritium either at any one time or within the period of a month. Under most circumstances, the tritium will be handled within a fume hood. In general, the levels of tritium used will be lower than those specified in Table 1 of the "Guidelines for Bioassay Requirements for Tritium" at any one time or within the period of a month. If these levels are exceeded, bioassays for tritium will be performed on all individuals working with tritium according to Sections III and IV of the Guidelines, with the baseline urinalysis having been performed prior to initiation of the work with tritium. If positive results are obtained, the actions taken will be the same as those specified in Section V of the Guidelines.

Training Of Students And Personnel

The Radiation Protection Officer will give safety training at least once annually to all individuals who work in or frequent the restricted area, including students, housekeeping personnel, laboratory personnel, and security personnel.

1. The training given to students and laboratory personnel using radioisotopes will include, but not be limited to, the safety rules and emergency procedures included in the original application. Individual instruction will be given just prior to the use of radioisotopes for the first time.
2. The training given to the housekeeping personnel will emphasize the fact that the designated containers for the disposal of radioactive waste should not be emptied. The floors, surfaces, and sinks within the restricted area will be kept in a decontaminated state, but still it will be recommended that the housekeeping personnel wear disposable gloves when cleaning the restricted area. The housekeeping personnel will clean the restricted area at a specified time, unless there is someone working in the area at that time.
3. The training given to the security personnel will emphasize that in the case of an accident or fire the emergency procedures should be followed as quickly as possible. These emergency procedures will be posted and each individual will receive a copy after having been instructed in them.

Receipt Of Packages Of Radioactive Materials During Off-Duty Hours

1. If the radioisotope arrives during off-hours, the material will be signed for and left with one of the Biology or Chemistry faculty members.
2. If none of the faculty members are present, the delivery personnel will have access to Laboratories A and B, in which the radioisotopes will be stored.
3. Delivery and receipt of the radioisotope will be reported to the Radiation Protection Officer as soon as possible on the following day.
4. The delivery personnel and the Biology and Chemistry faculty members will have received previous instructions and safety training from the Radiation Protection Officer, which will include the following:
 - a). There will be a designated area in Laboratory B, presumably in one of the fume hoods, for the delivery of radioisotopes which are to be stored at room temperature.
 - b). There will also be a designated area, in the refrigerator-freezer, in Laboratory B for the delivery of radioisotopes which are to be stored either at 4°C or frozen.
 - c). The delivery personnel will be instructed not to unpack the radioisotopes; this will be done by the Radiation Protection Officer or a licensed user.
 - d). Any accident involving the radioisotopes during their delivery should be immediately reported to the Radiation Protection Officer, whose home telephone will have previously been given to the delivery personnel.

Routine Survey

The minimum frequency with which the laboratories will be monitored will be once monthly when radioisotopes are in use, except in the case of ^{32}P . After each use of ^{32}P , the area in which the radioisotope was used will be thoroughly monitored.

Waste Disposal By Burial

The records on disposal of the radioisotopes by burial will be kept by the Radiation Protection Officer and will include the following:

1. the total estimated quantity of radioactive material buried at any one time and in any one location, ensuring that this quantity does not exceed the amount specified in the Nuclear Regulatory Commission Regulations 10 CFR 20.304 and Appendix C.
2. the date on which the burial was made, ensuring that there are no more than 12 burials/year.
3. the depth of the burial and the location of the burial within the waste disposal site, ensuring that successive burials are separated by at least six feet.