



1500 North 30th Street
Billings, Montana 59101-0298

DEPARTMENT OF BIOLOGICAL
SCIENCES
(406) 657-2342

April 2, 1985

Mr. Jack E. Whitten
Nuclear Materials Safety Section
U.S. Nuclear Regulatory Commission Region IV
Parkway Central Plaza Building
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Whitten:

I have responded to those issues you raised in the Feb. 13, 1985, correspondence. These are listed as follows. A copy of your correspondence is also included.

1. Mr. Ken W. Keikes, Administrative Vice President, is authorized to make appropriate commitments on behalf of Eastern Montana College. A letter from him to that effect is enclosed.
2. Training of Auxilliary Personnel
Three persons other than individual users are present in rooms where radioisotopes are employed. These persons include two animal caretakers and a custodian. At the time of hire, these individuals are apprised of the presence and potential hazard of radioisotopes. A copy of the Appendix to Section 19.12 of 10 CRF is given to each employee with instructions to review. A week later an individual user (G. Bintz) reviews the appendix with each employee and each employee's questions are answered. The employee acknowledges receipt and review of the appendix (see attached form: Receipt and Review of Form 10 CRF, Section 19.12). Since turnover of employees is reasonably rapid, this procedure is repeated every quarter to every year.
3. Disposal of Radioactive Wastes
 - a. Isotopes are disposed in accordance with ~~20.301~~, ~~20.303~~, and ~~20.305~~ of 10 CRF 20. We are licensed for 4.0 millicuries of ^3H and 11.0 millicuries of ^{14}C . Each is less than the maximum of one curie per year which may be disposed in the sewage system. Liquid wastes, other than liquid scintillation media, are so disposed. Liquid scintillation wastes and animal carcasses are buried in the city landfill and are unavailable as a food source. Records of disposal are kept by individual users.

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- ✓ b. In classes using radioisotopes, instructions are given to students regarding use of radioisotopes. Rules for use were submitted under 14. Radiation Protection Program, Section d of Supplemental Sheet No. 2: Rules for Radioisotope Use. No students handle radioisotopes without direct supervision. A copy of the rules is posted in each lab where use occurs.
- ✓ c. Movement of radioisotopes between rooms, etc.
Isotopes are stored in double containers and are transported between labs in such state. Transport is done only by individual users.
- ✓ d. Isotopes are stored in a dedicated refrigerator freezer in double containers. Containers are labelled, indicating nuclide, activity, lot No., and form. These areas are identified with the appropriate radiohazard symbol. A copy of the "Rules Governing Use of Radioisotopes" is posted in this room. The room has a security lock.
Contaminated glassware and articles are either washed by trained technicians or disposed of in the city landfill. Washing procedure is posted above the washing sink and disposable gloves are worn during washing. Technicians who wash glassware are given specific instructions for care of glassware. Activity on glassware after washing is monitored.
- ✓ e. Mouth pipetting is not allowed. Remote pipetting devices are used.

✓ 4. Attached

✓ 5. Attached

✓ 6. Survey Program

✓ a. Areas to be Surveyed

Radioisotope use is restricted to five rooms. Three are diagrammed on the attached sheet. There is no student access to these rooms. Two additional rooms experience radioisotope use.

a) Botany Research Lab

b) Animal Physiology Research Lab

During periods of isotope use in these rooms, each is surveyed biweekly.

✓ b. Type and Level of Radiation and Contamination Acceptable

Current radioisotope use is restricted to carbon-14 and tritium. Monitoring of carbon-14 is done by GM detector. The acceptable level of contamination is that indistinguishable from background. Tritium is monitored by wiping counters, sinks, chairs, and benches with a wet cloth, dilution into 1 liter of water, and counting of an aliquot. Acceptable contamination is 50 dpm/ml above background.

✓ c. Provisions for Maintaining Records

Records of Surveys are kept in a separate binder in the department chair's office.

OK 7. Waste Disposal

- ✓ a. Isotopes in a gaseous state from plant and animal respiration are released into the atmosphere.
- ✓ b. Liquid wastes other than liquid scintillation cocktails are disposed in the sanitary sewer system.
- ? c. Liquid scintillation cocktails and carcasses of animals and plants are buried in the city landfill.

OK 8. Calibration of radiation survey and monitoring instruments is not contracted.

Sincerely,

Gary L. Bintz

Gary L. Bintz, Chair
Department of Natural Sciences
Eastern Montana College
1500 North 30th Street
Billings, Montana 59101-0298

GLB/pe

Cleaning and Decontaminating Animal Cages

1. Cages from contaminated animals must be washed in the tank reserved for such purposes.
2. Disposable gloves must be worn.
3. Brushes, etc., used in cleaning must not be used on uncontaminated cages.
4. Cleaning
 - a) Soak cages in H₂O and detergent for 48 hr.
 - b) Change H₂O and detergent--soak for additional 24 hr.
 - c) Scrub cages.
 - d) Rinse.
 - e) Repeat (d)
 - f) Sample final rinse water for contamination.
 - g) Surface monitor each cage. If contaminated, repeat necessary steps.
 - h) If final rinse water shows no activity and cages no contamination, cages may be returned to cage racks.

Acknowledgement Form 270-130
Receipt and Review of Form 10 CRF, Section 19.12

I have reviewed form 10 CRF, Section 19.12 and have had opportunity to raise questions with Gary L. Bintz.

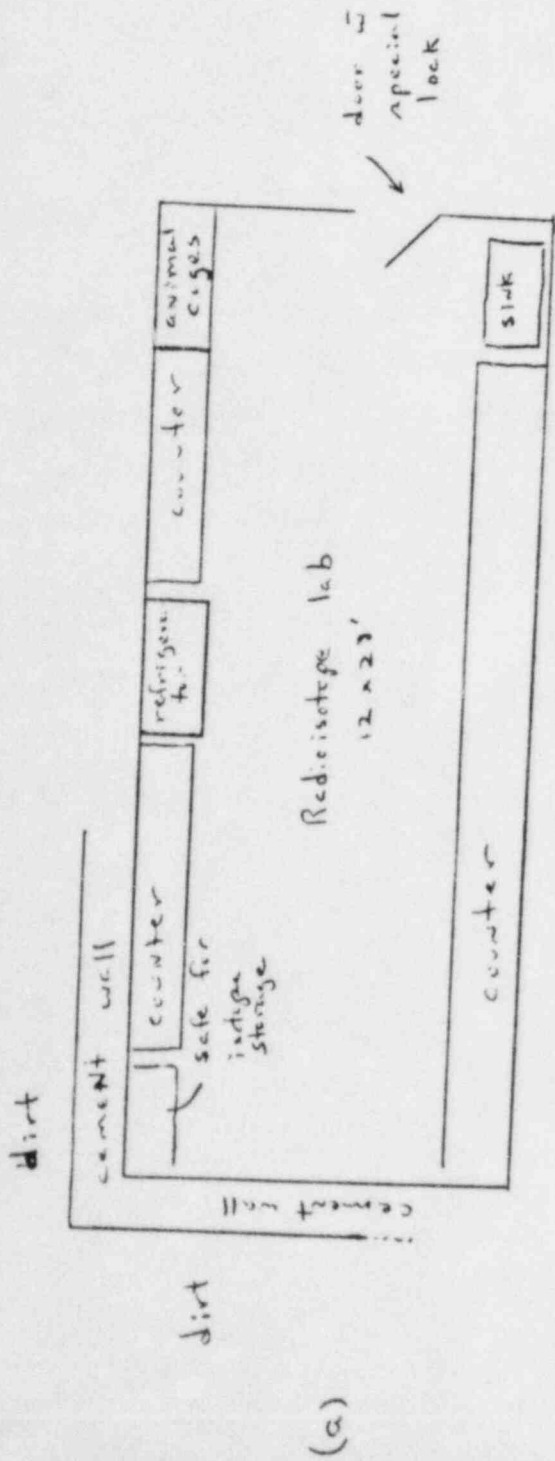
Signed _____

Emergency Procedures

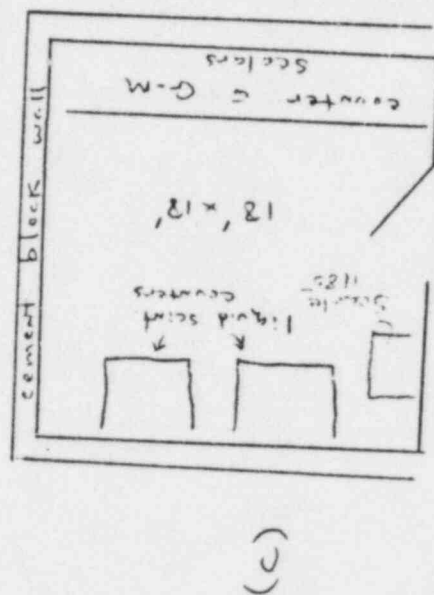
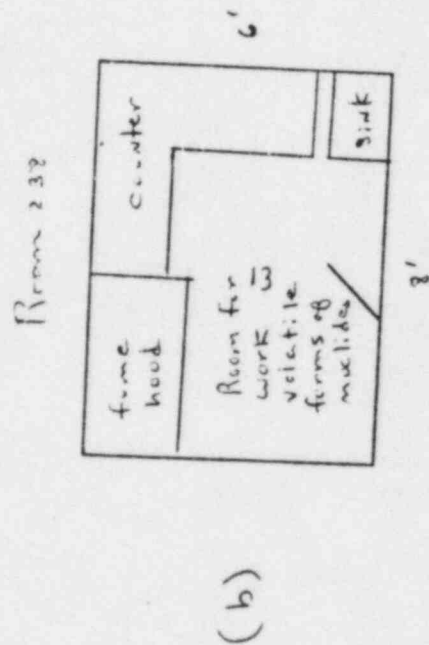
1. Cordon off area of suspected contamination.
2. Try to determine type of contamination (type of nuclide).
3. Put on protective clothing (foot- and handwear).
4. Determine area of contamination by monitoring.
5. Decontaminate area, beginning from outer edge. Monitor to assure decontamination.
6. Notify Gary L. Bintz, Jay F. Kirkpatrick, or Stanley M. Wiatr (657-2031).
7. Notify Security Office (657-2298).

Instructions for Animal Caretakers

1. Animals containing radioactivity are to be marked by individual users. Such animals must not be handled by caretakers.
2. Disposable gloves will be worn when working with or near animals containing radioactive materials.
3. Items use in care of animals (brooms, mops, brushes, bottles, etc.) must not be used in another room.
4. Animal wastes and carcasses containing radioactivity are to be stored in the freezer in Sc 119 until disposal is arranged.
5. Cages from animals containing radioisotopes are to be washed only in the appropriate tank.
6. No food, drink, or smoking is allowed in the Animal Room when radioisotopes are employed.
7. Direct questions to Jay F. Kirkpatrick or Gary L. Bintz.



Rooms for Radioisotope Use



- a) away from traffic and locked
- b) & c) near traffic, but locked:

Procedures for Ensuring that Animal Rooms will be Locked.

1. Animal rooms are on security lock and are locked at all times.
2. Cages housing contaminated animals are latched and wired shut.
3. Only authorized users and caretakers have keys to the animal room.