

current practices for
field use of ^{14}C and
 ^3H .



Eastern Montana College

BILLINGS, MONTANA 59101

May 30, 1978

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

Dear Dr. Lamastra:

Enclosed is the response you requested for amendment of License No. 25-12923-01 to authorize field use of C-14 and tritium. Also enclosed are responses from two ranchers upon whose land the sites are located. The site description fits both sites.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary L. Bintz".

Gary L. Bintz, Ph.D.
Chairman,
Associate Professor
Department of Biology

GLB:kc

Enclosures

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1. Research Protocol

a) Field procedures.

The research problem involves measuring the fate of H-3 and C-14 labelled substrates in Richardson's ground squirrels (Spermophilus richardsoni) under field conditions. Ground squirrels will be trapped, injected with 10 microcuries of labelled substrate, marked for visual identification, and released. Recovery of ground squirrels will be attempted within a few hours. Following recovery of squirrels, liver, skeletal muscle, and adipose tissue will be removed and frozen for later analysis in the laboratory.

b) Safety procedures in the field.

Isotopes are carried into the field in glass vials which are individual contained in other vials. Each container is wrapped in paper and the isotope is kept frozen on dry ice until used. The maximum activity carried into the field would not exceed 250 microcuries per trip and 1.0 millicurie per year. Handling of isotopes will occur over a 25" x 40" metal tray, and gloves will be employed. Only the principal investigator handles the stock of isotope.

Recovery of all ground squirrels is improbable, however, in one recent trial in which 19 ground squirrels were marked (but not injected), 14 were recovered within 24 hours. Although some ground squirrels escape, they do not leave the area in which they are trapped, thus a degree of confinement of unrecovered isotope is to be expected. Within 24 hours more than 85 percent of the label is oxidized (determined from laboratory experiments), which reduces the possibility of contamination of a predator.

After animals have been trapped and dissected, carcasses will be buried.

3. Potential radiological hazard.

The study sites are located in open sagebrush habitat which is free from human recreation and grazing by domestic stock. The sites receive 12-15 inches of moisture per annum, very little of which falls during the summer when the studies will be conducted. Each site is at least two miles from permanent water and four miles from human habitation. No known endangered species inhabit the sites.