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Project Title: Measurement and Apportionment of Radon Source  
Terms for Modeling Indoor Environments

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OVERALL SCOPE OF WORK

Research Objectives

This research has two main goals; (1) to quantify mechanisms for radon entry into homes of different types and to determine the fraction of indoor radon attributable to each source and (2) to model and calculate the dose (and therefore alpha particle fluence) to cells in the human and animal tracheobronchial tree that is pertinent to induction of bronchogenic carcinoma from inhaled radon daughters. The dosimetry has been extended to include organs other than the lung.

ACCOMPLISHMENTS DURING 1991-1992

a. Research House Activities

a. 1. Evaluation of Measurement Protocol

Thirteen months of hourly  $^{222}\text{Rn}$  data from one of our research homes (the ultra-high energy efficient home) were divided into different interval lengths. The purpose was to simulate the existing measurement protocols that are currently being used by vendors or proposed by EPA as a measurement strategy.

The data were averaged over 180, two day measurement periods; 52, seven day periods; and 5, ninety day periods. These intervals are equivalent to measurements being made with charcoal canisters and alpha track detectors. The annual average for the home is known from the hourly measurements and the annual average

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