RADIATION REVIEW

UW - Madison Safety Department **Radiation Safety Program**
262-8769 **May 1993**

WE'RE MOVING

Sometime toward the end of the summer, the UW Safety Department will move to the east side of campus, near the Borden garage behind the SERF building. The move is part of a reshuffling made necessary to provide safer working environments for University staff and students. Many details are still being worked out, however we are committed, as always, to keeping inconvenience to our clients As Low As Reasonably Achievable. We will tell you more as information becomes available to us.

NEW TRAINING MATERIAL FOR LABORATORY TECHNICIANS

The Radiation Safety Staff has prepared a new training guide, "**Radiation Safety for Radiation Workers**". This booklet is meant to replace the yellow soft-cover "**Radiation Safety For Laboratory Technicians**." It will be distributed the first part of September. This material will provide the basic radiation safety laboratory procedures needed to function in a radiation work environment.

HEALTH PHYSICS CORNER

NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM)

What are they?

Naturally occurring radioactive materials are the radioactive elements produced by cosmic interaction with the atmosphere, by primordial radionuclides in the earth's crust, or radionuclides inside our bodies. It has been estimated in the United States background radiation contributes a dose of 100 - 200 mrem per year to each person.

COSMIC RADIATION

The sun and other stars constantly bombard the atmosphere with high-speed particles and gamma-photons. Most are deflected but some penetrate the atmosphere, exposing us to radiation. Others interact with components of the upper atmosphere, producing more radioactive material. Most of the cosmic radiation which reaches the earth are the products of these interactions. Many of these radionuclides are produced by spallation, where many particles are ejected from an atomic nucleus after it's smashed by a high-energy particle. Some of the cosmogenic radionuclides that contribute to background radiation are Hydrogen-3 (tritium), Carbon-14, Beryllium-7, and Sodium-22. Cosmic radiation contributes a dose of 30-80 mrem/year, depending on altitude.

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HEALTH PHYSICS CORNER (CONT.)

TERRESTRIAL RADIATION

Terrestrial or primordial radiation is produced when cosmic radiation bombards atoms of soil and water or by the decay of naturally occurring radioactive materials in the earth's crust and in the sea. Some of the more common natural radionuclides are Uranium-238, Thorium-232, Tritium, Carbon-14, Radon-222, and Radium-226. It has been estimated that the average concentration of uranium in the first foot of soil is 1 ton per square mile and the concentration of thorium in the first foot of soil is 3 tons per square mile. Terrestrial radiation in the United States contributes a dose of 15 - 140 mrem per year depending on building materials and geologic formations. Background levels in other areas of the world (i.e. India, Brazil, France) are 2 - 5 times higher. There appears to be no difference in life expectancy for people in those areas compared to people in other areas of the same country.

INTERNAL RADIATION

All of us have some radioactive material inside our bodies from ingesting naturally occurring radioactive materials. The most common is Potassium-40 which contributes a dose of around 20 mrem per year. Other sources of internal radiation are Carbon-14, Tritium, Polonium-210, and Radium-226 which contribute another approximately 20 mrem per year.

Except for isolated, potentially dangerous situations such as excessive radon level or uranium mill tailings used in construction material, background radiation exposure from naturally occurring radioactive materials should not be cause for concern.

NEW HEALTH PHYSICIST

A new Health Physicist has joined the Radiation Safety staff. Honghu Chen will direct the dosimetry and radioiodine monitoring programs. Mr. Chen has worked in the Health Physics field in China and at the University of Cincinnati.

IN CASE YOU HAVEN'T HEARD

There are NON-radioactive nucleic acid labeling and detection methods on the market. Applications include in situ hybridization, southern blots and others. These non-radioactive methods have the obvious advantage of handling no radioactivity. In addition and according to the manufacturer, detection is in minutes, often in seconds, highly sensitive, and provides permanent results on film. For additional information contact Amersham, Boehringer Mannheim, DuPont, or your favorite vendor.

Principal Investigators

Please remember if your radiation technicians go on vacation, you should assign someone else to do surveys in their absence. Also, if you will be gone more than 30 days, you need to temporarily transfer your authorization by sending a completed Form 99T to Safety. Thank you.

Who Are We and What Do We Do?

MISSION STATEMENT

The Radiation Safety Program, utilizing its maximum capacity, will advocate and support the missions of the Safety Department, Facilities Planning and Management and the University. This program is committed to keep radiation exposure to the University community, general public, environment, faculty, staff, and students As Low As Reasonably Achievable.

To support the University's teaching, research and health care missions, and to assure using all essential and available tools in achieving these missions, the University Radiation Safety Committee (URSC) and the Health Physics Staff will promote safe management of radioactive materials and radiation-producing equipment without impeding any capabilities.

To alleviate the regulatory burden from the University's faculty and staff, the URSC and the Health Physics staff will assist users to understand and comply with regulatory requirements and good practices.

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RADIATION SAFETY STAFF AND DUTIES

NAME	POSITION	PHONE NO.	DUTIES
Ronald Bresell	Radiation Safety Officer	2-9178	Manages daily operation of Radiation Safety Program
Abdul Ben-Zikri	Assistant RSO	2-9748	Training, Emergency Response, Anything not listed below
Leola DeKock	Senior Health Physicist	2-9180	Nuclear Medicine, Radiotherapy, UW Reactor
Honghu Chen	Health Physicist	2-8081	Dosimetry, Radioiodine Monitoring
Arne Jansen	Health Physicist	2-9608	Machine - produced Radiation
Ralph North	Health Physicist	2-1524	Radioactive Waste, Environmental Monitoring
Larry Veleke	Health Physicist	2-6511	Central Ordering, Receiving, and Distribution (CORD)
Jeff Orwin	HP Technician Supervisor	2-3278	Leak Tests, Supervise survey technicians
Bruce Cornwell	Health Physics Technician	2-9629	Laboratory Surveys and Compliance
Jim Pence	Health Physics Technician	2-9629	Laboratory Surveys and Compliance
Terry Reed	Health Physics Technician	2-9629	Laboratory Surveys and Compliance
Pete Van Zeeland	Health Physics Technician	2-9629	Laboratory Surveys and Compliance
Ray Drotos	Radioactive Waste Technician	5-2015	Radioactive Waste Processing and Disposal
Greg Zukowski	Radioactive Waste Technician	5-2015	Radioactive Waste Processing and Disposal
Ron Kiesling	Information Management	2-5150	Network and Information Systems Support
Sharon Johnston	Program Assistant	2-7530	Dosimetry
Mary Swenson	Program Assistant	2-6511	CORD Billing
Greg Dirk	LTE - CORD	2-6511	Data Entry, Take Radionuclide Orders
John Durand	LTE - CORD	5-2014	CORD Delivery
Debbe Veleke	Student	2-4250	Program Support
Tanya Rush	Student	2-9629	Program Support
Jay Mokotoff	Student - Radioactive Waste	5-2015	Assist Radioactive Waste Program

*** WORD HUNT ***

THE WORDS HIDDEN IN THIS GRID MAY RUN:
HORIZONTALLY FROM LEFT TO RIGHT AND VERTICALLY FROM TOP TO BOTTOM
HORIZONTALLY FROM RIGHT TO LEFT AND VERTICALLY FROM BOTTOM TO TOP
DIAGONALLY IN ALL DIRECTIONS. TWO WORD CLUES HAVE A LETTER BETWEEN WORDS

ACTIVATION
ACTIVITY
ALARA
ANION
ATTENUATION
BACKGROUND
BREMSSTRAHLUNG
CALIBRATION
CATION
COLLIMATOR
CONTAMINATION
DETECTOR
EXPOSURE
GEIGER MUELLER
KERMA
LEAD PIG
LICENSEE
LUMINESCENCE
MICROCURIE
MILLICURIE
MILLIROENTGEN
NUCLEON
POSITRON
QUENCH
RADIOGRAPHY
STOCHASTIC
TRITIUM
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G L E A D Y P I G O D W J V E F L N D F Y S Q
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