Radiologic Health Program

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Radiologic Health Program

Radiation Overview and Safety
Radiation Machine Facilities
Mammography Facilities
Physicist Registrations
Vendor Registrations
Emergency Response
TENORM
Radon
What is Radiation/Radioactivity?

- All matter is made up of atoms: electron, protons, neutrons
- Atoms that gain or lose a proton, neutron, or proton become unstable
- Radioactivity is the release of energy from an unstable atom trying to become stable again
Non-Ionizing Radiation

- Loss of an electron making the atom unstable, but energy is too low to disrupt the electrons of other atoms.

- Types of Non-Ionizing Radiation
  - Radio wave
  - Visible light

Ionizing Radiation

- Energy of the electron release is significant enough to disrupt the electrons of other atoms.

- Types of Ionizing radiation
  - Alpha
  - Beta
  - Gamma/X-rays
  - Neutrons
Types of Ionizing Radiation

- **Alpha**
  - Large particle with positive charge weak energy easily blocked by skin
  - Internal risk

- **Beta**
  - Electron release with slightly higher energy then Alpha
  - Can penetrate skin but not fatty tissue
Types of Ionizing Radiation

- Gamma/X-rays
  - Energy waves released during ionization large amounts of energy
  - Requires dense material to block

- Neutrons
  - Has a neutral charge
  - Found in nuclear reactors
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Radiation Machine Facilities

Dental Offices (950)
Medical Offices (595)
Veterinary Offices (210)
Chiropractic Offices (180)
Hospitals (55)
Podiatry Offices (65)
Radiation Therapy Facilities (20)
Industrial Facilities (225)
Facilities Inspection Requirements

- Shielding Plan/Radiation Survey
- Radiation Protection Plan
- Dosimetry Records
- Machines working properly
Mammography Facilities

- 66 Facilities in the State
- Regulated by the FDA
- Staff accredited by the FDA to perform inspections
- Inspections performed Annually
Physicists requirements to Register

- Application Submission
- Identify what types of services they will provide in the state of West Virginia such as:
  - General, Radiation Machine Evaluation, Therapy Evaluation, Shielding design, Mammography
- Resume
- Board Certifications
- Diplomas
- MQSA also requires a track of CE credits
Vendor Requirements to Register

- Completed Registration form
- Identify all services they wish to perform such as: Machine assembly, removal, repair; Machine sales, loan, or lease; Film processing/supplies; Personnel dosimetry services; Survey instrument calibration
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Emergency Response

RADIATION ALARMS

TRANSPORTATION ACCIDENTS

NUCLEAR POWER STATION
Located 5 miles East of Hancock County (Shippingport, PA)

Radiological field monitoring teams, dose assessment, emergency response and FEMA graded exercises.
TENORM-Technologically Enhanced Naturally Occurring Radioactive Material

- Naturally occurring radioactive materials that have been concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing.

- Industrial wastes or by-products enriched with radioactive elements found in the environment, such as radium, uranium, thorium and potassium and any of their decay products.
Radon Facts

- Naturally Occurring Radioactive (Nobel) Gas
- Atomic Element #86
- Colorless
- Odorless
- Tasteless
What are Health Effects of Radon?

- Radon is the second leading cause of Lung Cancer in the United States.
- Radon is inhaled into the lungs, where it undergoes radioactive decay.
- During decay, tiny bursts of alpha particles are released that harm sensitive lung tissue by damaging the DNA.
- This DNA can then lead to lung cancer.
How does Radon Get into Homes?

- Radon Enters a home when warm air rises and creates a vacuum in the lower areas of the house.
- Air seeps in from soil around and under the house.
- Air can also be sucked in through cracks, doors, or windows in the lower level of the home.
- Radon gas enters the same way air and other soil gases enter a home; through cracks in the foundation floor or walls, hollow-block walls, drains, pipes and sump pumps.
How do I find out if My House has elevated Radon Levels?

- Radon test kits that meet EPA guidelines can be obtained from a radon testing company or laboratory.
- A free home test kit is available from the West Virginia Radon Program for homeowners by contacting our office.
Where in West Virginia is Radon Found?

Legend
RADON
- 0.0 - 1.9 pCi/L
- 2.0 - 3.9 pCi/L
- 4.0 pCi/L or more
OFFER FREE RADON TEST KITS TO RESIDENTS IN WEST VIRGINIA TO TEST THEIR HOMES. HAVE A PROGRAM IN PLACE TO TEST SCHOOLS FOR RADON

WORK WITH RADON MITIGATORS IN OUR STATE TO ENSURE THEY ARE CERTIFIED.

WORK WITH LOCAL HEALTH DEPARTMENTS AND OTHER AGENCIES TO INCREASE AWARENESS OF THE EFFECTS OF RADON EXPOSURE.
Questions?

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