OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Radiation Management Section

June 27, 2014

DISCUSSION POINTS

What and Where?

Radiation in your Facility

Regulation of Licensed Activities in Oklahoma

Outreach, Services, and Rulemaking

What and Where?

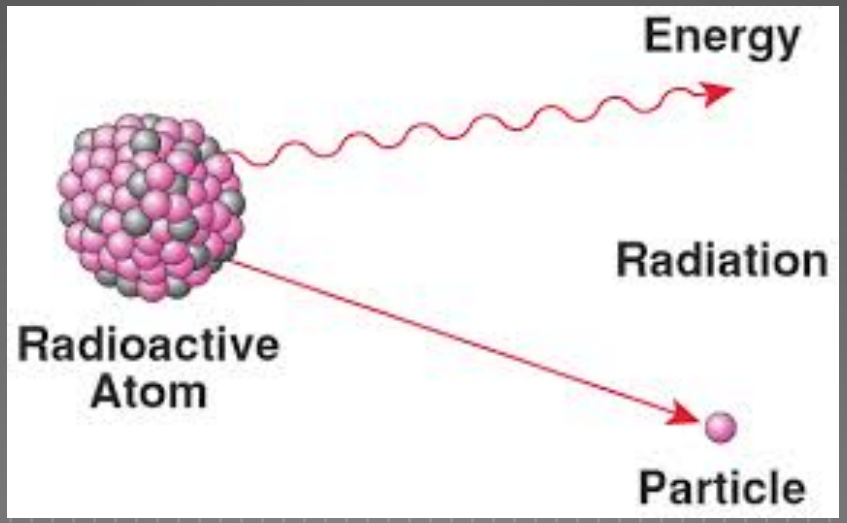
Radiation

What is it?

Where is it useful?

WHAT AND WHERE?

- Radiation -- the process in which energy is emitted as particles or waves.



WHAT AND WHERE?

- Radiation is used as a tool
  - Make measurements (density, levels, thickness)
  - Identify materials
  - Take pictures through solid objects
  - Treat cancer
  - Provide luminescence in exit signs, watch dials, gun sights

WHAT AND WHERE?

- Manufacturing
- Fabrication Shops
- Oil & Gas Pipelines
- Oil & Gas Drilling
- Refineries
- Pumping stations
- Construction sites
- Hospitals/Medical Suites
- Universities
- Engineering/Environmental Firms
- Pawn Shops
- Precious Metals Dealers
- Courthouses/Jails

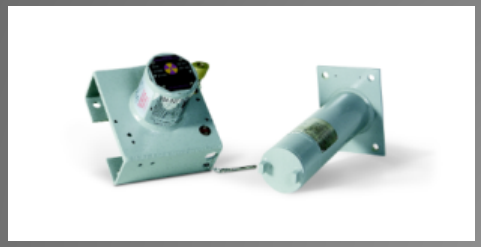
"HOW THINGS ARE MADE"

- Ground Beef facility
- Medium Density Fiberboard (MDF) manufacturer
- Martial Arts items manufacturer
- Glass manufacturer
- Beverage Bottling Company
- Roofing Shingles Manufacturer
- Oil and gas refinery
- Hog processing plants
- Road construction
- Plastic film for food packaging

Well Logging

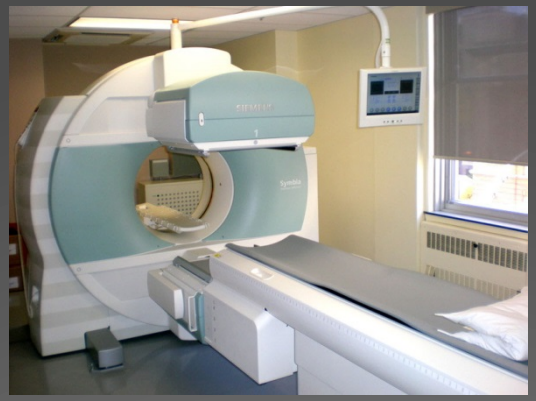
Industrial Radiography

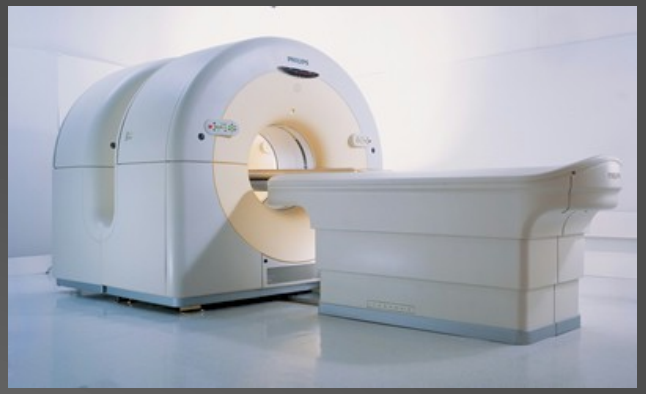
Fixed Gauge



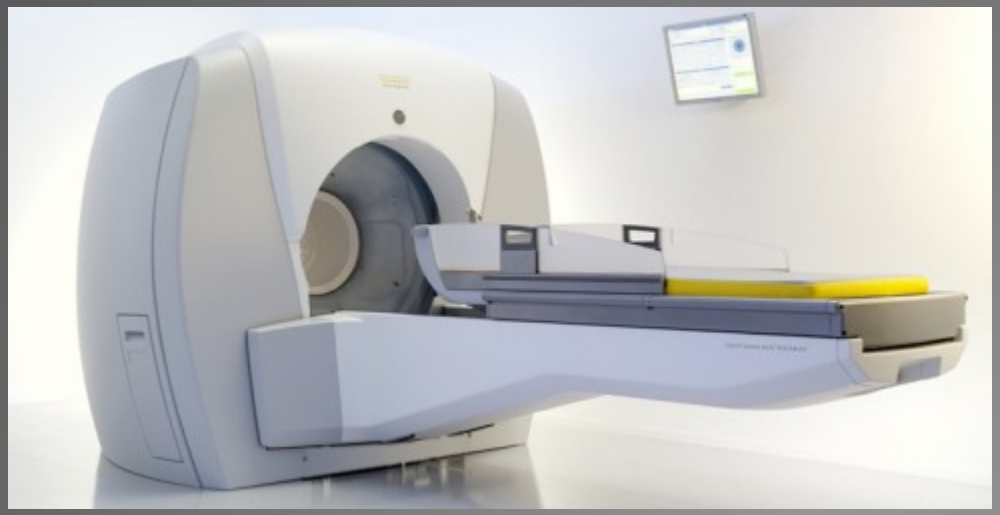
Portable Gauge

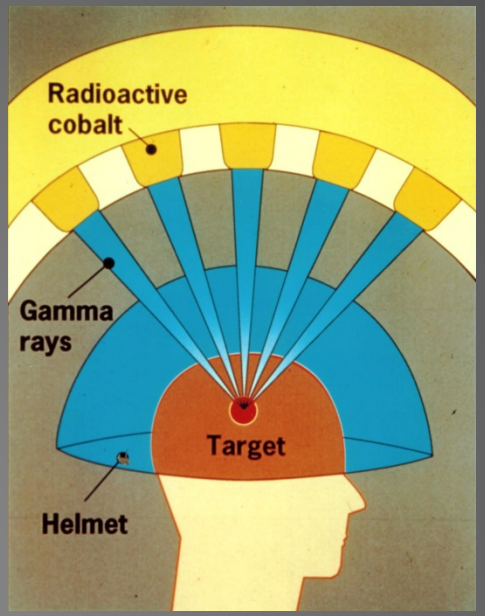
Nuclear Medicine – Tc-99m, I-131, or F-18 (PET scan)





Stereotactic Radiosurgery –Gamma Knife, Co-60





Brachytherapy Seeds – Temporary, Cs-137, Permanent, Pd-103, I-131

High Dose Remote Afterloader - Ir-192

Blood Irradiator

Radiation Producing Machines

Radiation in your Facility

RADIATION IN YOUR FACILITY

- What type of radioactive or radiation producing items are already in your facility?
- Are you required to register/permit/license them?
  - Specifically Licensed Devices
  - Generally Licensed Devices (GLDs)
    - X-ray machines

RADIATION IN YOUR FACILITY

- What type of work would bring radiation to a non-licensed facility?
  - Industrial Radiography (non-destructive testing)
  - Portable Nuclear Gauge (construction/road work)
  - X-ray Machines

RADIATION IN YOUR FACILITY

- What questions should you ask them?
  - Request their license from them or reciprocity recognition granted by DEQ
  - Check with the licensing authority regarding compliance records.

RADIATION IN YOUR FACILITY

- How can you help keep safety a priority?
  - Make sure the Radiation Worker is following your safety procedures and theirs
  - Educate your workforce
- When should you be concerned and call DEQ?
  - Device left unattended
  - Worker shows signs or is concerned they are experiencing symptoms of radiation exposure
  - Emergency regarding the device (run over device, device in a fire, etc.)

Regulation of Licensed Activities in Oklahoma

REGULATING THE SAFE USE OF RADIATION

- The DEQ regulates Radioactive Material (RAM) and Radiation Producing Machines (X-ray) for medical, industrial, and academic use through regulations/Rules and guidance, licensing, and inspections and enforcement.

REQUIREMENTS FOR POSSESSION IN OKLAHOMA

- **Radioactive material (RAM)**
  - "Specific License"
  - "Site Registration" - generally licensed devices

- **Radiation Producing Equipment (X-ray machines)**
  - "Permit": Analytical/industrial or Therapeutic

Outreach, Services, and Rulemaking

OUTREACH

- Through sampling, education, offering services, and providing assistance, DEQ can be involved with the regulated community, not just enforcing regulations.

OUTREACH - EDUCATION ABOUT RADON

- **What is RADON?** – Naturally occurring radioactive gas that comes up through the soil and can collect in low areas in buildings. The EPA has set the action level at 4 piC/L, and Oklahoma has had a high hit in every county. Unfortunately, there is not enough data to make correlations.
- EPA Grant for:
  - Radio/TV Interviews and Highway Billboards
  - RADON testing in schools
    - Five schools in Oklahoma so far (Pre-K through 12 and elementary schools)
  - RADON Booth
    - Home and Garden Show (Oklahoma City and Tulsa)
    - DEQ Health Fair

www.epa.gov/radon

OUTREACH - PORTABLE NUCLEAR DENSITY GAUGE PRESENTATION

- April 8 &10, 2014 in OKC and Tulsa
- To open up communication with our licensees and present them with information that could help them improve their programs to avoid common violations

SERVICES - INDUSTRIAL RADIOGRAPHY EXAM

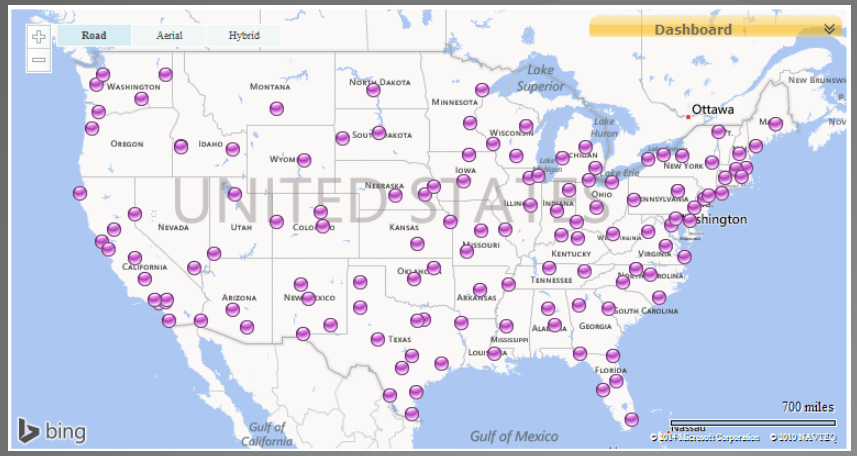
- All states and the NRC require Industrial Radiographers to be certified in order to work in those states or NRC controlled regions
  - Nine states (including Oklahoma) and the ASNT provide tests
- Industrial Radiography Certification Exam
  - A service the DEQ provides to our licensees because of the number of Industrial Radiography companies, and therefore Industrial Radiographers located in and around Oklahoma.
  - Certification is valid for five years
  - Six scheduled tests this year - Oklahoma City and Tulsa
  - 3000+ examinees since 1999, currently 700+ valid certifications

RADNET SYSTEM

- The State of Oklahoma operates two continuous air monitors in a partnership with the EPA for the nationwide RadNet system. Oklahoma City and Tulsa.

- RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological events.—EPA website, 2014

www.epa.gov/radnet



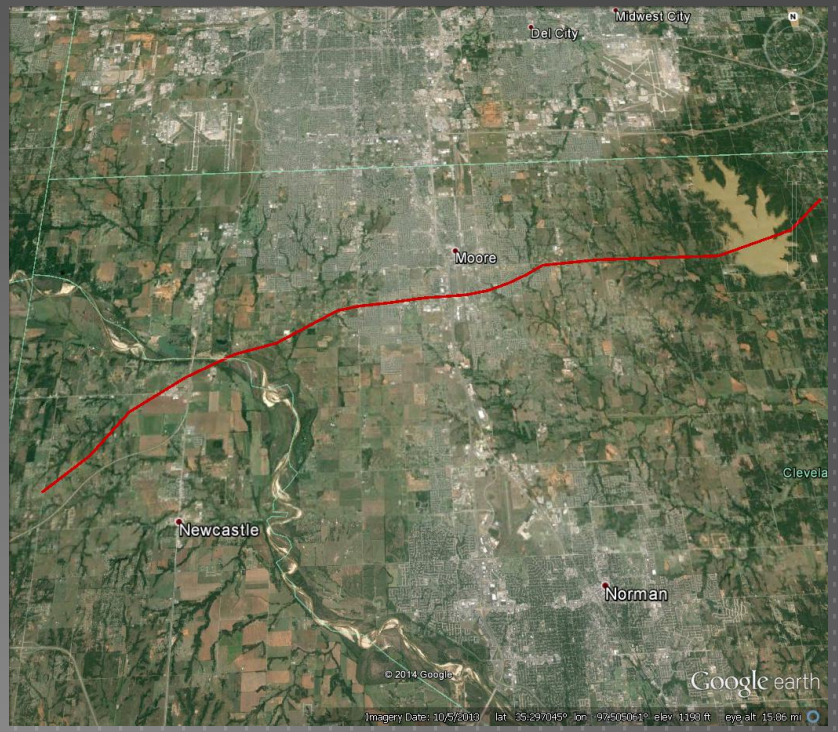
RADIATION RELATED EVENTS

- Fukushima Daiichi nuclear disaster – March 2011
  - Earthquake, tsunami, meltdown of three of six nuclear reactors at Fukushima Nuclear Power Plant. A release of materials was confirmed.
- Waste Isolation Pilot Plant (WIPP) – February 2014
  - According to New Mexico Environment Department, the radiation monitoring system indicated radiation levels above background, and then later, higher levels of radiation. Filtered exhaust fans were triggered automatically. A release was confirmed.

RADIATION RELATED EVENTS

- 2013 Storm Season – Tornado events and Radioactive Materials/X-ray Machines

- DEQ uses GIS to compare locations of radiation users with the storm track and identify radiation sources at risk from storm damage.



SERVICES – ASSISTING LICENSEES AND THE PUBLIC

- Lost or stolen radioactive devices
  - Press releases
  - Contacts in emergency services
- Landfill gate monitors/scrap metal gate monitors
  - Investigate shipments for potential hazards
  - Identify sources
  - Assist in finding disposal options
- Discovery of historic radioactive items that may pose a risk

Rulemaking

RULEMAKING

- Rule Development by DEQ
  - 60 Day comment period

- Radiation Management Advisory Council (RMAC) reviews proposed Rules and offers input
- The Environmental Quality Board reviews proposed Rules and can reject or pass them
- Legislature reviews proposed Rules and can deny or pass a bill to pass the proposed Rules
- Governor reviews proposed Rules and can sign or reject the proposed Rules

RULEMAKING

- The public is encouraged to participate by attending the RMAC meetings and the Environmental Quality Board meetings, and also to provide comments regarding proposed Rules.

- The DEQ website has schedules posted of all proposed rules and meetings. www.deq.state.ok.us

SUMMARY

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Questions?