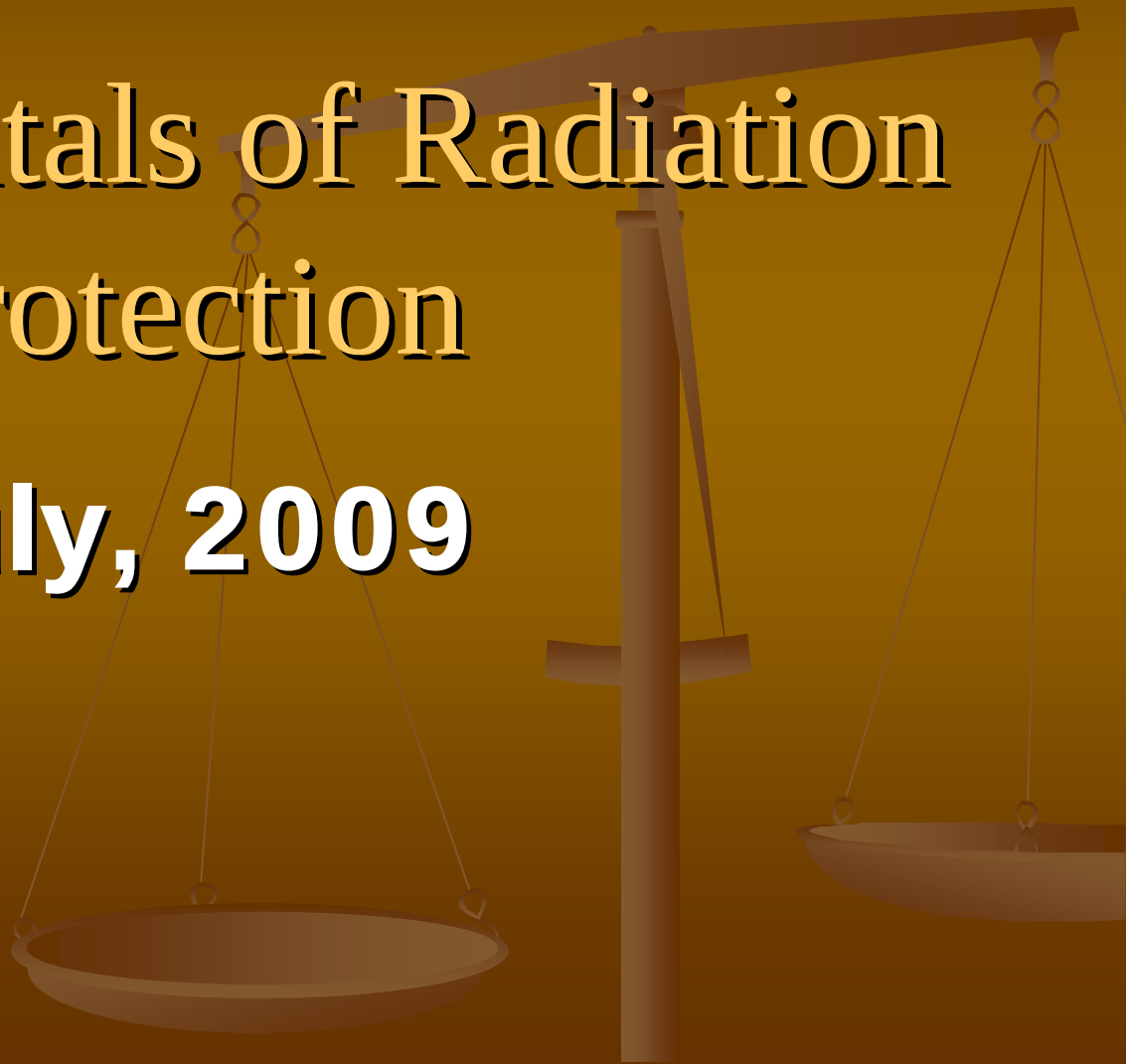
Fundamentals of Radiation Protection

July, 2009



The ALARA Principle

- As
- Low
- As
- Reasonably
- Achievable

The ALARA Principle

- **Philosophy**
  - Justification
  - Optimization
  - Limitation
- **Practice**
  - Time
  - Distance
  - Shielding
  - Containment

Philosophy

- **Justification-**

  - There must be a “positive net benefit” to the individual and/or to society.

  - “Just because …” does not work!

- **Optimization-**

  - Best use of existing equipment, personnel and financial resources required.

  - “Always done that way!” is not an acceptable explanation

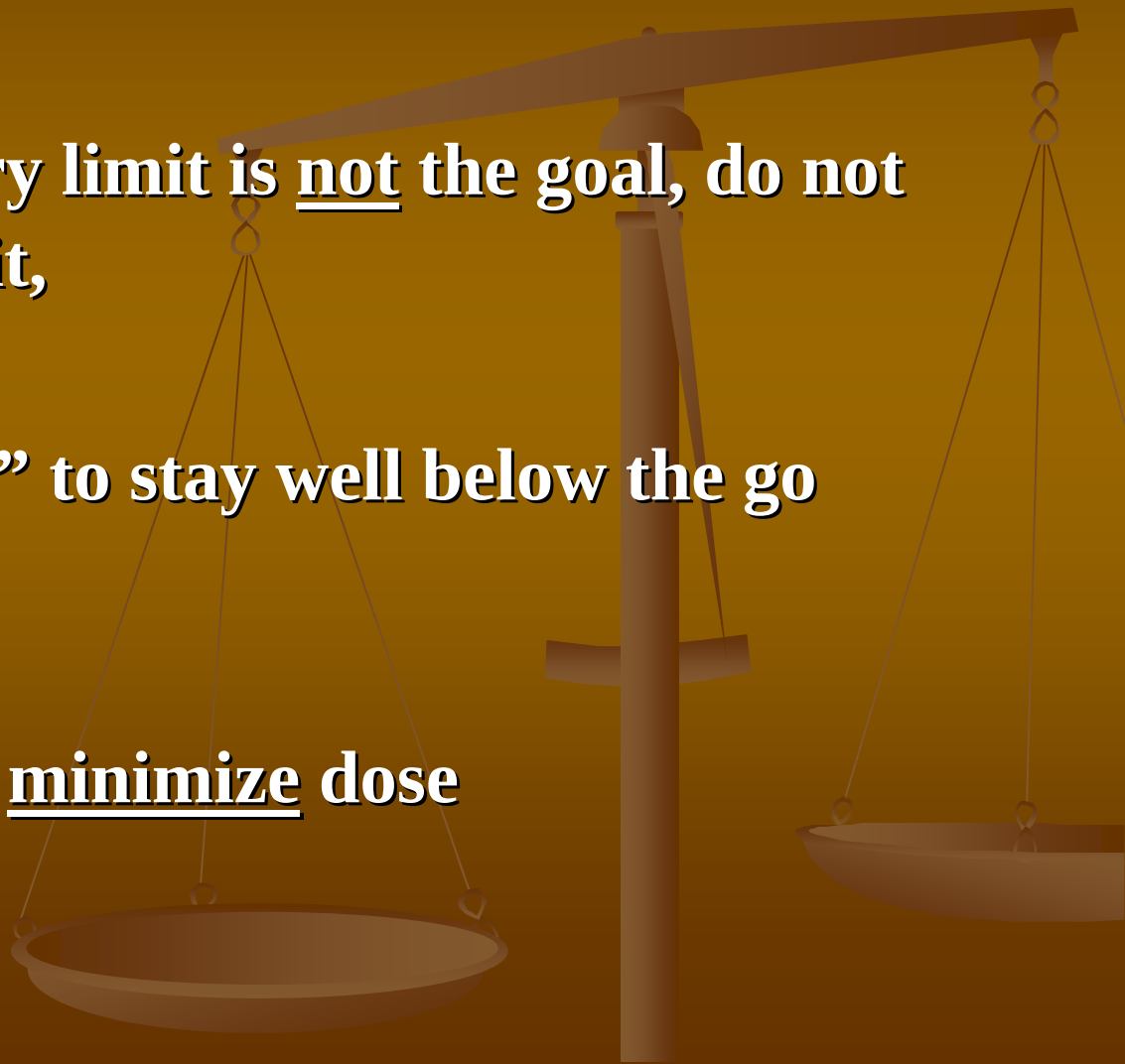
Philosophy

- **Limitation-**

  - The regulatory limit is not the goal, do not plan to the limit,

  - "Work smart" to stay well below the go limit,

  - The goal is to minimize dose



Shielding

- If you stand out in the rain *without* an umbrella, you will get wet.
- But, if you use an umbrella to shield you from the rain, you may remain dry and protected.
- If you increase the shielding between you and a radiation source, it will decrease your dose.

Distance

- Compare this to sitting in front of a fireplace. You can sit directly in front or across the room.
- The farther away you are from the fire, the less heat you will receive.
- Similarly, the farther you are away from a radiation source, the lower your dose will be.

Time

- **If you spend a lot of time on the beach, ultimately you get a sunburn. By reducing the amount of time you spend on the beach, you can avoid a sunburn.**

- **Similarly, decrease the amount of time you spend near the source of radiation, and decrease the amount of radiation dose you receive.**