

EXPOSURE CONTROL AND PERSONNEL MONITORING

MODULE 6

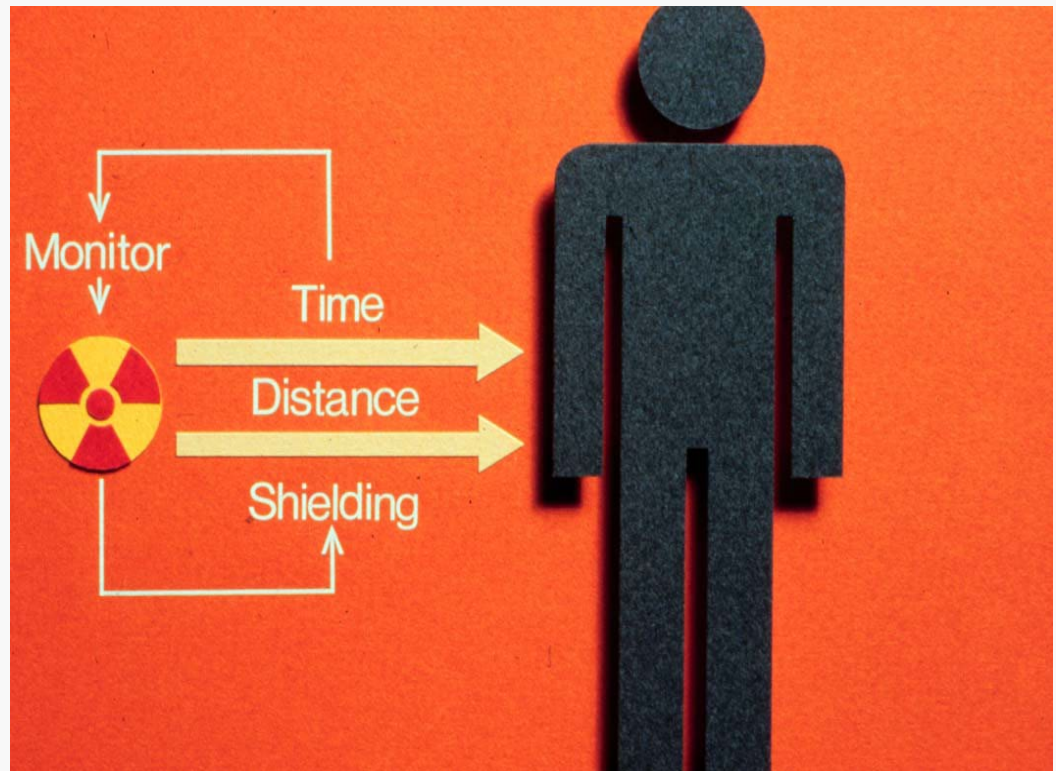


OKLAHOMA STATE UNIVERSITY
CENTER FOR HEALTH SCIENCES

RADIATION PROTECTION

The three basic principles of radiation protection are time, distance, and shielding.

These principles are used to minimize exposure to ionizing radiation.



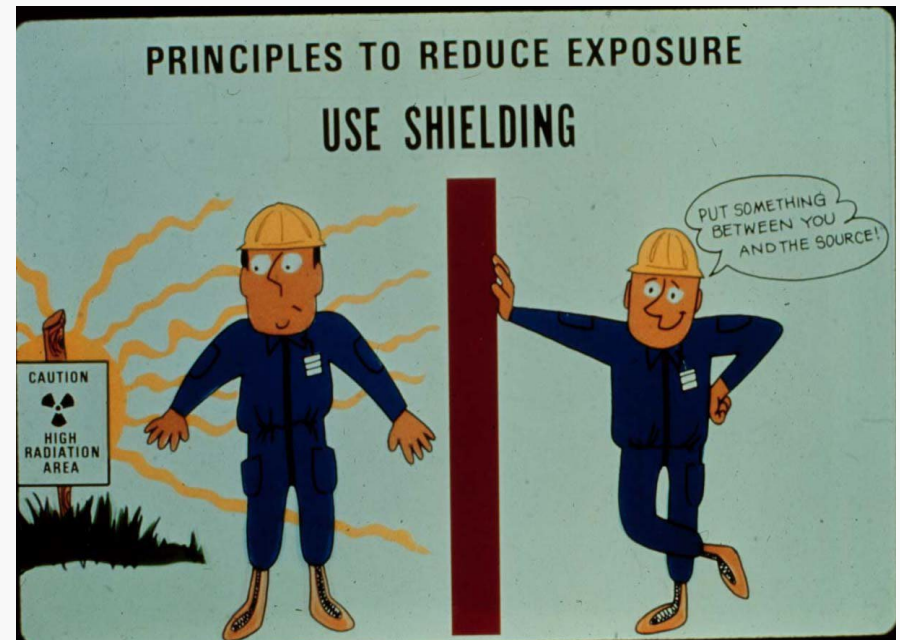
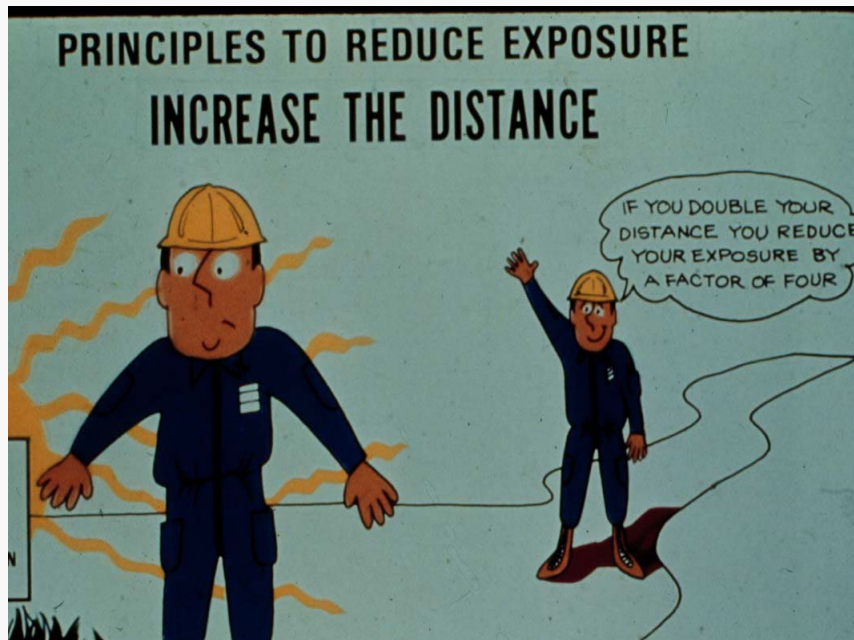
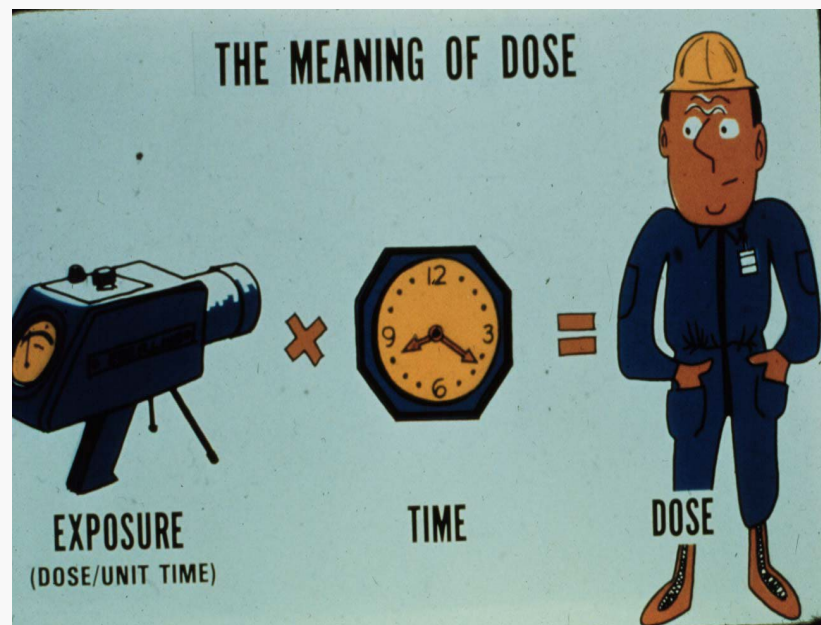
The word "ALARA" is rendered in a large, outlined, sans-serif font. Behind the letters are several vertical, slightly blurred streaks of light in blue, purple, and red, creating a sense of motion or energy. The background is a solid dark blue.

ALARA

"As Low As Reasonably Achievable."

It's a philosophy that emphasizes minimizing radiation exposure for individuals and the environment.

ALARA is achieved by adhering to three core principles: **Time, Distance, and Shielding.**



What is a Personnel Monitoring Program?

A systematic process for monitoring, recording, evaluating, and reporting the radiation doses received by occupationally exposed individuals



Dosimeter Badge

Purpose of Personnel Monitoring

To ensure compliance with established dose limits.

To keep radiation doses as low as reasonably achievable (ALARA).

Data collection for the rad worker (they are aware of how much exposure they are/aren't getting).

Dose Limits

Occupational	Body Part	Quantity	Limit
	Adult(whole body)	TEDE	5.0 rem
	Minor(whole body)	TEDE	0.5 rem
	Embryo/Fetus	$H_d + H_{T,50}$	0.5 rem
	Eye	H_{eye}	15 rem
	Extremities	H_s	50 rem
	Individual Organs	$H_d + H_{T,50}$	50 rem
Public	General Public	TEDE	0.1 rem

*TEDE:
Total
Effective
Dose
Equivalent*

Declared Pregnancy

- All female radiation workers should be informed of their right to declare a pregnancy in writing and receive a lower dose limit.
- The 0.5 rem limit on the dose to the embryo/fetus is in force only if the pregnancy is declared, in writing, to the Radiation Safety Officer.
- Declaration of a pregnancy is completely **voluntary**.
- Information and forms may be found on the training website or by contacting the RSO.

Monitoring During a Declared Pregnancy

A declared pregnant woman should receive instruction concerning the risks to the embryo/fetus from radiation exposure.

A declared pregnant woman should be placed on the radiation dosimetry program.



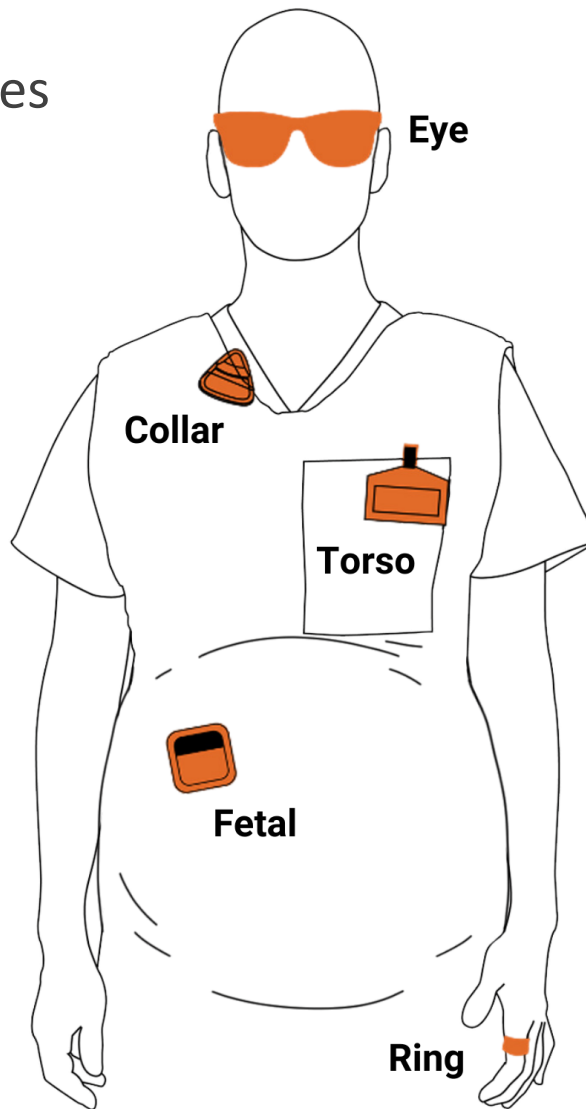
Monitoring Criteria

- Any occupationally exposed individual who is likely to receive a dose in excess of 10% of any applicable limit
- Any occupationally exposed individual who is likely to receive an intake of radioactive material in excess of 10% of the annual limit on intake (ALI)
- Any person entering a high radiation area or very high radiation area

Wearing Radiation Badges

- In general, badges should be worn
 - between the hips and shoulders
 - outside of any clothing
 - on the portion of the body nearest the radiation source
 - with the window facing outward
- Do not attach tape or other substances to the dosimeter (except in the designated spot)

Wearing Radiation Badges



WHY ARE SOME PEOPLE NOT BADGED?

The radiation emitted by some isotopes is not able to be measured with radiation badges:

- H-3 weak beta
- C-14 weak beta

Moonlighting

Individuals who incur additional radiation exposure from off-duty employment must provide records of any doses received to the Radiation Safety Office.



Annual Reports

Each individual provided dosimetry must be given an annual report of their radiation exposure (Form 5).

If you want a copy of your radiation exposure, such will be provided by the Radiation Safety Officer.