



Dose Calculations and Shielding Considerations with emphasis on Photon and Neutron Exposures

Date: June 11, 2020, 13:00-16:00 EDT

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Course Outline

Radiation protection professionals are often called upon to perform radiation dose calculations, and additionally provide shielding solutions to reduce exposure to below regulatory criteria and to levels as low as reasonably achievable. Dose calculations can range from simple estimates to complex calculations for both internal and external exposure scenarios. Although there are a variety of types of radiation that require dose calculations (for example alpha, beta, gamma and neutron), the dominant type of external radiation exposure scenarios that need to be considered for many industrial applications are from photon and neutron exposure. This PDC will provide an overview of the basics of dosimetry calculations, both internal and external, and will provide some simple strategies to estimate shielding requirements from external photon and neutron exposure.

Learning Outcomes:

By the end of this PDC, the participants will be able to:

- UNDERSTAND the different types of dosimetry calculations and when they apply
- COMMUNICATE the differences between different types of radiation exposure and dosimetry units
- UTILIZE tools and data for dose calculations
- PERFORM simple internal dose calculations
- PERFORM simple external dose calculations
- FORMULATE different external shielding strategies
- SELECT different strategies for mitigation of internalized radionuclide dose
- PERFORM simple external exposure shielding analysis for neutrons and photons

Lesson Plan

Topic #	Topic
1	Basics of radiation dose calculations
2	Dosimetry units
3	Tools and Data
4	Simple internal dose calculations and exposure mitigation
5	Wellness break
6	Simple external dose calculations
7	Simple external shielding considerations
8	Wrap-up
