SUNITA KAMBOJ

Radiological Health Risk Section
Environmental Science Division
Argonne National Laboratory

Education:

C.H.P.	American Board of Health Physics, 1997
Ph.D.	Georgia Institute of Technology, Health Physics, 1994
M.S.	Georgia Institute of Technology, Health Physics, 1990

Professional Experience:

1994-Present	Environmental Systems Engineer Environmental Science Division Argonne National Laboratory

Have expertise in biota dosimetry, radiological risk and dose assessment, the NRC license termination process, radiation protection standards and regulations, release of real and non-real property for reuse and recycle, and health physics instrumentation.

Internal and external dose coefficients (DCC) were calculated using Monte Carlo transport code, MCNP, for five ICRP reference organism geometries selected from the terrestrial and freshwater ecosystem and for the eight reference geometries in the RESRAD-BIOTA code.

Cleanup standards were developed for a radiological dispersal device (RDD) event. Guidelines were developed for making the following decisions: stay times that an emergency responder can spend for a given dose limit; the protective action (evacuation or sheltering) required in the early phase; relocation, allowing temporary access and allowing access to transportation routes in the intermediate phase; release of real property from radiological control in the late phase; use of food or whether it can be grown in a contaminated area after an RDD event.

Worked on the NRC training course titled, “Evaluation of Dose Modeling for Compliance with Radiological Criteria for License Termination.” Evaluated site-specific derived concentration guideline levels (DCGLs) for decommissioning the Connecticut Yankee’s Haddam Neck Plant. Developed parameter distribution functions and conducted probabilistic dose analysis using these parameter distributions for RESRAD codes.

Developed standardized protocol for concrete disposition to assist DOE sites in releasing concrete and conducted concrete release protocol case studies for decommissioning work at the Idaho National Engineering and Environmental Laboratory. Generated unit dose factors for different disposition alternatives in the development of DOE complex-wide authorized release protocols regarding radioactive scrap metals for reuse and recycle. Performed a radiological dose assessment for the dismantlement and decommissioning option for the Heavy Water Components Test Reactor

Facility at the Savannah River Site. Performed dose and risk analysis for many projects related to release of the U.S. Department of Energy's real and non-real property for reuse and recycle.

Developed an external exposure model to improve the external ground pathway dose estimation in RESRAD family of codes. Tested external exposure model using Monte-Carlo simulation and Micro Shield computer code calculations. Performed RESRAD calculations for different sites and derived uranium guidelines for the residual radioactive materials in soil. Modified and prepared supporting documents for the RESRAD family of codes. Performed Monte-Carlo simulations for neutron and gamma doses from cylindrical surface sources in the RISKIND bench marking efforts.

Summary of Previous Experience:

7/94-9/94 MGP Instruments, Smyrna, GA

Performed Monte Carlo simulations for in-duct monitoring of gaseous effluent releases from a nuclear reactor. Calculated the detection sensitivity of a selected set of isotopes for an encapsulated NaI(T1) detector placed inside the monitoring duct.

1989-6/94 Georgia Institute of Technology, Atlanta, GA

Instructor for a problem-solving health physics practice course. Worked in the Environmental Radiation Laboratory at Georgia Tech and analyzed different environmental samples. Used Monte-Carlo simulations to analyze and quantify different interactions in thick germanium detectors under various geometric conditions.

Research Interests:

Monte Carlo simulation
Radiological risk assessment
Biota dosimetry
Reactor decontamination and decommissioning

Professional Activities:

International Commission on Radiological Protection – Member ICRP C5 Task Group
Health Physics Society – Member of the Continuing Education Committee
American Academy of Health Physics – Part 2 Panel Member
Midwest Chapter of Health Physics Society – Member

Publications:

Author or co-author of 70+ journal, report, and conference publications and presentations.