

NCRP Releases Report No. 163, *Radiation Dose Reconstruction: Principles and Practices*

Radiation dose reconstruction is the retrospective assessment of dose to *identifiable or representative* individuals or populations *by any means*. In NCRP Report No. 163, *Radiation Dose Reconstruction: Principles and Practices*, the scope of dose reconstruction includes estimates of *absorbed dose to individual organs or tissues* for specified exposure situations in support of epidemiological studies or compensation programs, to guide interventions in accidental or malevolent exposures, or for individual or public information. There are many different applications of dose reconstruction as defined in this Report and many potential approaches.

NCRP Report No. 163 illustrates the breadth of the field, and emphasizes that all dose-reconstruction projects, while unique, incorporate a few basic elements, which are described and illustrated with many examples (case studies). Each case study is intended to demonstrate how specific limitations associated with the case study were overcome. A common thread is that no two dose reconstructions are alike in all respects.

The dose-reconstruction process has several basic elements that can be divided into the five essential steps:

1. definition of exposure scenarios;
2. identification of exposure pathways;
3. development and implementation of methods of estimating dose;
4. evaluation of uncertainties in estimates of dose; and
5. presentation and interpretation of analyses and results.

There are two foundation elements of the entire dose-reconstruction process that are integral to performing each step:

1. data and other information; and
2. quality management (quality assurance and quality control).

Reconstruction of radiation doses requires explicit consideration of the routes of exposure, as well as types of measurement data that may be available. This Report provides an overview of methods that can be used to estimate doses from external and internal sources, and the limitations of the methods. This Report also discusses the roles of biodosimetry and opportunistic dosimetry in dose reconstruction.

Dose reconstructions are categorized with respect to exposures that are medical, occupational, environmental or accidental.

The Report is available from the NCRP website, <http://NCRPpublications.org>, in both soft- and hardcopy formats. For additional information contact David A. Schauer, ScD, CHP at schauer@NCRPonline.org, 301.657.2652 (x20) or 301.907.8768 (fax).