

Preface

This manual provides the scientific and technical foundations for bioassay program design and interpretation, and for the assessment of occupational intakes and internal doses. The *Hanford Internal Dosimetry Project Manual* (PNNL-MA-552)^(a) applies these foundations to define the recommended worker bioassay monitoring programs and internal dose assessment efforts at the Hanford Site.

According to the DOE Internal Dosimetry Program Guide (DOE G 441.1-3, 03-17-99), a technical basis document should record the approach to evaluating internal doses from bioassay data, and where appropriate, from workplace monitoring data. It should also describe the physical and chemical characteristics of radioactive materials encountered in the workplace; methods for calculating internal doses and dose equivalents and the methods for documenting those calculations; dose evaluation quality assurance; recording and reporting practices for internal dosimetry; selection of workers for monitoring; and establishment of the type and frequency of measurements to be used. Furthermore, statistical methods for evaluating bioassay data, identifying bioassay results above environmental background values, using appropriate blanks, and analyzing trends should be described.

This manual describes the basic methods and biokinetic models used for bioassay program design, interpretation, and internal dose assessment. These methods and models are combined with good practices and professional judgment to give the operational recommendations for routine and special bioassay monitoring contained in the *Hanford Internal Dosimetry Project Manual* (PNNL-MA-552). The actual selection of workers for monitoring and the characterization of the physical, chemical, and radiological properties of contaminants in the many Hanford facilities are the domain of the individual Hanford contractors.

The recommendations in this manual are provided as guidance, not requirements, to personnel responsible for designing and operating bioassay monitoring programs and evaluating bioassay results. Commitments by contractors to use these recommendations may be found in the contractor radiation protection plans. This manual is on a 3-year revision schedule, however individual sections are revised as necessary, and upon revision, commence their own 3-year revision cycle.

This manual is maintained by the Hanford Internal Dosimetry Program, operated by the Pacific Northwest National Laboratory's (PNNL's) Radiation and Health Technology group. The contact person for questions or comments regarding the content of this manual is Eugene H. Carbaugh at 376-6632. Available email address: gene.carbaugh@pnl.gov

(a) Pacific Northwest National Laboratory (PNNL). *Hanford Internal Dosimetry Project Manual*. PNNL-MA-552, Richland, Washington. (Internal manual.) Available URL:
<http://www.pnl.gov/eshs/pub/pnnl552.html>
