The Mayak Worker Dosimetry System (MWDS-2013) for Internally Deposited Plutonium: An Overview

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The Mayak Worker Dosimetry System (MWDS-2013) is a system for interpreting measurement data from Mayak workers from both internal and external sources. This paper is concerned with the calculation of annual organ doses for Mayak workers exposed to plutonium aerosols, where the measurement data consists mainly of activity of plutonium in urine samples. The system utilises the latest biokinetic and dosimetric models, and unlike its predecessors, takes explicit account of uncertainties in both the measurement data and model parameters. The aim of this paper is to describe the complete MWDS-2013 system (including model parameter values and their uncertainties) and the methodology used (including all the relevant equations) and the assumptions made. Where necessary, Supplementary papers which justify specific assumptions are cited.

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