RADIATION DOSE REEVALUATION FOR THE NAGASAKI FACTORY WORKERS*,

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Chromosome aberration data suggest that dose estimates for Nagasaki factory survivors based on the current Dose System 1986 (DS86) are over predicted by approximately 40%. It has been conjectured that the principal cause of this discrepancy arises from the failure in previous calculations to include radiation attenuation effects of workbenches, metal forming machines, tools, etc. The question addressed in this work is whether inclusion in calculational models of these in-building components decreases the doses to levels that are more consistent with measured aberration data. Initial results of two-dimensional (R-Z) discrete-ordinates calculations with the Nagasaki source accurately replicated and with the factory building walls and tool covered workbenches approximately modeled, demonstrate that the required reduction is possible. Three-dimensional calculations incorporating accurate structure and building environ models are being used to estimate doses at specific survivor locations inside the building for comparison with the measured aberration data and incorporation in the revised Dosimetry System 2002 (DS02).

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