

Assessments and Investigations for Occupational Exposures of Radiation Workers in Korea

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The Objective of this study is to manage the overexposure and the categorized illegible dose by reevaluating them in accordance with the Korean Atomic Law and to establish data base for the status and the result of dose reevaluation. The case of being categorized as peculiar dose has analyzed by reviewing the dose reading procedure of the personal dose service provider who had distributed the personal dosimeter. The radiation worker who had worn the personal dosimeter has been questioned over any presumable cause leading to peculiar dose case. The occupational dose of the radiation worker involved in each peculiar dose case has been reevaluated by simulating his exposure condition, analyzing the radiation spectrum for and measuring level of ambient dose rate for the work place. The standard procedures for the dose reevaluation has been prepared and applied to the peculiar dose cases using models as follows: computer simulation modeling for hard-to-remember working conditions, laboratory and on-site assessment, model of dose evaluation by job category, and model of dose evaluation by radionuclide and practice involved in radiation work. 1) Peculiar case audit: It has been recognized that accuracy and confidence have been improved by introducing the standardized dose assessment models in the dose reevaluation for the reported peculiar dose case. Along with dose assessment by applying gene dosimeter technique to biological samples, dose reevaluation has been carried out for overexposed radiation worker and radiation level of the work environment in which the overexposed do his job has been analyzed using TLD. A total of 779 peculiar cases have been audited until 2006. 2) Organization and activity of the dose assessment Committee: Members of the Dose Assessment Committee has been denominated and convened to review the result of the dose reevaluation and to develop occupational dose management system. In accordance with MOST Notice 2001-36 'Provision for Personal Dose Assessment and Management', 15 experts have been nominated to members. 3) Establishment of confirmation system for dose reevaluation Result: Confirmation system for dose reevaluation result has been established to add accuracy and confidence to the reevaluated dose. Reference radiation field has been constructed to calibrate dosimeters and help confirm the reevaluated dose. 4) Epidemiological investigations on cancer risks among radiation workers: We are carrying out epidemiological investigations in order to evaluate effects of radiation workers including especially peculiar dose cases.