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ENVIRONMENTAL BURDEN OF NORM RESIDUES

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The monitoring and prevention of occupational radiation risk caused by enhanced natural radioactivity (NORM) has become obligatory in many cases of industry of concern. Usually the applied radiation risk constraints have been assumed based on primordial rules of radiation protection, exactly the same as in case of risk related to artificial radioactivity. Case-specific risk scenarios have been developed and became easily available for industry operators.

Far less attention has been paid to the environmental burden of useless NORM residues. Such waste are often deposited directly into environment what is strictly forbidden in case of radioactive waste. Hence, to assess the environmental impact, information on radionuclide species deposited, interactions within affected ecosystems and the varying in time distribution of radionuclide species influencing mobility and biological uptake is essential. Existing preliminary data pointed out strong needs to consider such waste as a specific case of environmental hazard. But NORM residues significantly differ in quantity and quality from “classical” nuclear materials and, moreover the derived radiation risk is usually associated with the risk caused by other pollutants. That’s why they can’t be controlled applying directly the rules designed and developed for pure radioactive waste. Such situation results in that up to now there are not precise regulations in this matter and finally non-nuclear industry is not aware of environmental problems caused by natural radioactivity.

This article discuss all aspects of environmental radiation risk caused by NORM residues heaped up directly in unauthorized (from radiation protection point of view) dumping. Inconclusiveness of existing recommendations and models of radiation risk assessment has been underlined. General terms, as i.e. environmental effect, and basic parameters necessary to carry out the consistent and comparable environmental risk assessment (ERA) have been developed and exactly defined.