

Dose Estimation for Treatment of Contamination Wastes Generated from Fukushima Daiichi Nuclear Power Station Accident

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The Fukushima Daiichi Nuclear Power Station (NPS) accident resulted in the release of radionuclides (¹³⁴Cs and ¹³⁷Cs) to the environment, which were deposited onto eastern area in Japan. The radionuclides deposition caused many kinds of contamination wastes, i.e. the disaster wastes generated by the Great East Japan Earthquake, plants, wastes in daily life, and dehydrated sludge through sewage and water supply processing. High radioactivity was detected especially in incinerated ash and dehydrated sludge. New regulatory system was needed to set up for radiation safety to the treatment of such contaminated materials. Because of putting highly contamination wastes under the regulatory control, it is especially of consequence to make the criterion to distinguish between regular treatment and radioactive waste management in a recovery phase after emergency situation. The criterion as radiocesium concentration for the wastes was derived from dose estimation for a series of regular treatment, i.e. transport, temporary storage, processing and/or incineration, controlled landfill and so on. Based on the dose estimation results, total radiocesium concentration as 8,000Bq/kg was determined, which is practicable for the regular treatment.

Additionally, large quantities of radiocesium contaminated soil through decontamination activities have been stored and will be disposed of finally. To complete the final disposal, the Ministry of the Environment of Japan presented the policy to reduce the disposal volume by using low-level decontamination soil as recycled materials. The recycle will be limited to civil engineering structures in public projects, such as coastal levee and road embankment, and be managed by the public authority. To make the criteria for ensuring the safety of restricted recycle, radiocesium concentration levels of reusable recycled materials for the structures were also derived with dose estimation approach.

Not only outline of the dose estimations but also current classification of contamination wastes will be shown in my presentation.

Keywords: *Dose estimation, Contamination wastes, Radiocesium concentration, Decontamination soil, recycle, Fukushima Daiichi Nuclear Power Station Accident*

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